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THE RESPSONSES OF THE ELDERLY CHINESE IN EDMONTON TO THE THREAT OF SARS

By

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Betty Shuc Han Wills

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FOR MY PARENTS AND FAMILY

Abstract

Severe Acute Respiratory Syndrome (SARS) is considered the first virulent infectious disease of the 21st Century by medical professionals worldwide. Aided by international travel, SARS quickly spread to 32 countries in five continents within weeks of its outbreak in Southern China. There are still no definitive treatments for the disease at this time and the mortality rate of 50% for elderly over 65 years of age is a major concern for many elderly. Prevention is deemed the best strategy against SARS to date. It is of great importance to gain an understanding of the use of protective and preventive strategies among Chinese elderly living in Edmonton, as the Chinese are quickly becoming the largest visible minority of Canada.

In this study, grounded theory was used to gain an understanding into the process of initiating preventive and protective strategies against SARS among Chinese elderly living in Edmonton. To fully address the cultural component of the study, specific ethnographic strategies were used. Retrospective individual interviews were conducted in Cantonese with 19 Chinese elderly who either lived by themselves, with family members or in a nursing home for Chinese elderly. Data analysis occurred concurrently with data collection. The researcher identified the core category of "Protecting self, family and others" using the constant comparison method of data analysis, and derived a theory consisting of 5 stages. (1): recognizing the threat of SARS, (2): becoming terrified, (3):

initiating strategies against SARS, (4): resorting to higher power for comfort and extra protection and (5): maintaining vigilance against SARS.

The findings from this study suggest that while Chinese elderly were seized by the fear of SARS, they were knowledgeable about the different protective strategies against SARS. They initiated these strategies as a responsibility to their family and others in the community. These responsibilities were profoundly influenced by the concept of filial piety, which remains a salient factor in guiding the actions of Chinese elderly in Edmonton. Implications of this study include how health care professionals, especially those who work in the public health sector, could provide support and care for the elderly group in case of a re-emergence of SARS or other similar infectious diseases.

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CHAPTER I

INTRODUCTION

In February 2003, the Severe Acute Respiratory Syndrome (SARS) epidemic occurred worldwide. From the beginning of the outbreak until its containment in July 2003, 8,096 reported cases were reported from 32 countries, with a case-fatality rate of 9.6% (World Health Organization [WHO], 2003a). Forty-four deaths in Canada were attributed to the disease, all from Toronto (Health Canada [HC], 2003a), and this greatly influenced health behaviors, particularly of the Chinese community. Although there were no confirmed SARS cases in Alberta, the epidemic had profound ramifications for the community as a whole. In this research study, I examined the response among the Chinese elderly in Edmonton, Alberta, in relation to SARS. In particular, I examined the use of traditional Chinese and Western strategies against SARS using a mixed method design, grounded theory combined with ethnographic strategies, to understand the responses of Chinese elderly in Edmonton to the SARS epidemic.

Background to the Problem

Throughout history, human migration[1] has been a key mechanism for the transmission of infectious diseases (Gushulak & MacPherson, 2000, 2004). The increase in the volume and speed of today's air travel has further increased the spread of infectious disease (Gushulak & MacPherson, 2004). This was the case with SARS, which moved at the speed of airline travel, circled the globe, and spread to 32 countries within days (Abdullah, Tomlinson, Cockram & Thomas, 2003; HC, 2003; WHO, 2003). There is now evidence that SARS originated in November 2002 in Guangdong province, in southern China, and spread to Hong Kong and Taiwan in February 2003 (WHO, 2003b). Because of its rapid spread, WHO issued a global alert regarding SARS on March 12, 2003. This pattern of disease transmission is of concern to Canadians, as many Chinese immigrants in Edmonton originated from Hong Kong and the southern part of Guangdong Province.

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[1] As a multicultural society, Canada is enriched by the contributions of immigrants from all parts of the world. In 1996, there were more than 5 million immigrants in Canada, representing 17% of the Canadian population. Since 1991, more than 70,000 immigrants have come to Alberta; most have chosen to stay in urban centers, with 33,775 coming to Calgary and 27,270 settling in Edmonton. Traditionally, most immigrants to Canada have come from the United States of America and Europe, but recently more immigrants have been arriving from countries in Asia, the Middle East, and Central and South America. In 1996, it was estimated that 57% of the immigrant population came from Asia (Statistics Canada, 1997). Among these immigrants from Asia, Chinese are the largest group, and Chinese are rapidly becoming the largest visible minority in Canada.

Research on infectious diseases has generally focused on the identification of the pathogens and the spread and treatment of the diseases. Scientific studies investigating the cause and treatments of diseases often have priority over behavioral and social studies, as the former produce important information for helping to contain the diseases. This applied to the AIDS and HIV epidemic in the early 1980s (Goodroad, 2003) as well as to the SARS epidemic. On March 15, 2003, WHO called for worldwide cooperation and established an international network of laboratories searching for the agent responsible for the disease (Ksiazek et al., 2003; Peiris, Yuen, Osterhaus, & Stohr, 2003; WHO, 2003). Such cooperation was urgent in view of the wide and rapid spread of SARS and the heavy toll on health care professionals worldwide.

Thus, the majority of the studies conducted at the onset of the epidemic concentrated on the clinical course of the disease (Lee et al., 2003), identification of the pathogens (Drosten et al., 2003), and understanding of its mode of transmission (Ksiazek et al. 2003; Peiris, Yuen, Osterhaus, & Stohr, 2003).

The causative agent for SARS is now confirmed to be a new member of the coronavirus family designated as SARS-CoV, and the predominant mode of its transmission is speculated to be large droplets or close and direct contact (Seto et al., 2003; Varia et al., 2003). The diagnosis of SARS still poses a challenge to the medical profession, however, as its symptoms are similar to those of many common respiratory infections (Jernigan, Low, & Helfand, 2004). To date, there are no rapid diagnostic tests available to confirm SARS, and its identification is particularly problematic during the seasonal outbreak of other respiratory illnesses (Jernigan, Low & Helfand, 2004). What is known, however, is that the elderly population is particularly vulnerable to SARS, with expected mortality rates approaching 55% for individuals over the age of 60 compared to 6.8% for those under 60 (Donnelly et al., 2003; Wang & Jolly, 2003). In view of a lack of definitive diagnostic tests or treatment for SARS at this time, research into the use of protective strategies becomes vital for the control of the disease. There is an urgent need to understand the use of strategies against SARS in particular among the elderly (Donnelly et al., 2003). Despite the increasing numbers of Chinese immigrants settling in Canada, research into their health status, the patterns of their health care services utilization, and the strategies they use to prevent illnesses is scant. The spread of SARS in the Greater Toronto Area (GTA) and to Vancouver via international travel had been confirmed; in fact, Canada was the only country outside of Asia that was greatly affected by SARS, with 44 deaths reported (HC, 2003). It is imperative, therefore, that health care professionals understand the use of protective and preventive strategies against SARS among Chinese immigrants. This is essential for the control of the spread of SARS and to provide Chinese immigrants with the support they need to resist and to fight the disease.

Studies investigating knowledge, attitudes, and behaviors of responses of communities toward the cause and prevention of diseases have been conducted in the context of cancer (Carter, Park, Moadel, Cleary, & Morgan, 2002) and HIV/AIDS (Chan, Khoo, Goh, & Lam, 1997; Maticka-Tyndale et al., 1994; Rahman, Shimu, Fuki, Shimbo & Yamamoto, 1999). SARS is a new disease, however, and there remains a paucity of research in this area, with only one study on the experiences of SARS located, and this was conducted from the perspectives of the elderly in Hong Kong (Tse, Pun, & Benzie, 2003). Understanding the attitude toward and knowledge of the use of preventive and protective strategies among the elderly would be helpful to control the spread of the disease among the most vulnerable group, as the majority of 'super-spreaders' of SARS were the elderly (Lapinsky & Granton, 2004).

An individual's cultural beliefs concerning the cause of a particular disease influences their use of strategies for protection against and prevention of that disease and its treatment. (Fabrega, 1981; Morse, Edwards, & Kappagoda, 1988; Ujimoto, 1994). Such knowledge is crucial to the understanding of why individuals use certain strategies to prevent and protect themselves from a certain disease. The model of disease causation for Western medicine (WM), based on the "germ theory," is vastly different from that of Traditional Chinese Medicine (TCM), which offers a model based on the disruption of *yin* (陰) and *yang* (陽). Individuals' strategies against diseases are closely associated with their beliefs as to the causes of diseases. This knowledge is essential for health care professionals to develop an education program for different cultural groups such as the Chinese elderly. Furthermore, the Chinese elderly who immigrated to North America might be influenced by both Western and Traditional Chinese ways of thinking in relation to what causes diseases, and this might influence the use of strategies to prevent diseases.

The living arrangements of the Chinese elderly might influence their use of protective and preventive strategies against diseases. Elders who live in a nursing home for Chinese elderly or in an apartment for elderly Chinese might have good access to Chinatown, which is located within walking distance of both buildings. Easy access to TCM might influence its increased use in the treatment and prevention of illnesses. On the other hand, Chinese elderly who stay with family members, especially those living with young grandchildren, might be more willing than elders who live alone to utilize illness prevention strategies, as they are reluctant to pass on any diseases to the young children and other members of the family. Thus, multiple characteristics play a role in deciding whether the Chinese elder will use TCM or WM to treat and prevent illnesses.

Western-trained physicians advocate strategies such as wearing protective clothing and washing hands to stop the spread of infectious diseases. The main focus of TCM, on the other hand, is prevention of diseases. Little is known about specific strategies used by Chinese elderly in Canada in relation to SARS, although researchers have reported the use of both WM and TCM among Chinese for treatment of illnesses in

Hong Kong, Singapore, and Taiwan when both types of services were available (Bishop, 1991; Koo, 1984; Lim & Bishop, 2000; Wills, 1997). The use of TCM had been advocated for the prevention of SARS by medical professionals in China, Taiwan, and Hong Kong (Professor P.C. Leung, personal communication, August 14, 2003), yet no research has been conducted to investigate the use of such strategies against infectious diseases among the Chinese elderly.

Problem Definition

Self-medication with traditional herbal remedies and other cultural practices for the treatment of illness is common among Chinese from Hong Kong in Canada (Lam, Catarivas, Munro, & Lauder, 1994). Lam and her colleagues (1994) found that the majority of their participants did not disclose their self-medication practices to their physicians, possibly out of fear of disapproval or because the use of Chinese tonics is so common that they did not consider them medications. In addition, the philosophical underpinnings for treatment and prevention of illnesses are different for both canons, and both TCM and WM are available widely in Canada. The main emphasis of TCM is on the prevention of diseases through a holistic approach; symptoms are investigated in relation to the whole body. Therefore, TCM aims to address the cause and not merely to treat the symptoms. It subscribes to the belief that illnesses arise when there is an imbalance of yin (陰) and yang (陽) energies; the aim is, therefore, to restore equilibrium, whereupon symptoms of the illness will subside and eventually disappear, and the illness is then cured. An array of treatment regimens, such as acupuncture (針灸), herbal medicines (草藥), massage (按摩), food therapy (食療), and *qi gong* (氣功), can be used to restore the imbalance of *yin* (陰) and *yang* (陽) energies. Proponents of WM, on the other hand, are concerned with the control of symptoms through the use of medications and, perhaps, lifestyle changes. With respect to WM, symptoms are commonly directly related to a specific organ system; thus, high blood pressure will be caused by cardiovascular factors, renal factors, or unknown factors based on the classification of high blood pressure

During the SARS epidemic, Western-trained physicians both in China and Hong Kong have advocated the use of herbal medicines and Western medicines in the prevention and treatment of SARS (Leung & Ooi, 2003). However, TCM's role in the prevention of SARS remains dubious to many Western-trained physicians, yet the use of herbal medicines was widely embraced by Chinese living in Hong Kong and China during the SARS epidemic (Professor Q.M. Chen, personal communication, July 15, 2003). To provide appropriate care to the Chinese elderly living in Edmonton, it is important to investigate systematically the types of protective and preventive strategies utilized by Chinese elderly against SARS and other infectious diseases. Such information would be helpful in planning program that would be culturally appropriate to the Chinese elderly.

Purpose and Rationale

There is a need to explore how Chinese elderly utilize the different types of protective and preventive strategies against SARS and their rationale for using them, as SARS might return in the future, and some physicians in Edmonton had expressed their concerns that Chinese elderly might be at risk of contracting the disease (Dr. M. Joffe, personal communication, June 23, 2003). The fear that SARS would make a comeback was realized when the first case of SARS after its supposed worldwide eradication was reported in Singapore on August 25, 2003. Since then, the WHO has confirmed three SARS cases in China, and this has raised the concern that SARS might reappear at a later date. A thorough understanding of the rationale for specific protective and preventive strategies for SARS among the Chinese elderly will help health care professionals in the provision of support services that will empower this population in the maintenance of their health. Ultimately, such research will lead to a deeper understanding of the experiences of this group, and consequently the health care system will better be able to address their needs, leading to the establishment of appropriate services.

Study Objective

The objective of this study was to generate a grounded theory describing the process of using either Western and/or Traditional Chinese protective and preventive strategies in the prevention of SARS among Chinese elderly in Edmonton.

Research Questions

The research questions of the study were

1. What strategies do the Chinese elderly in Edmonton use to prevent and to protect themselves against SARS?
2. What are the characteristics and cultural context that influences the use of the different types of preventive and protective strategies used by the Chinese elderly in Edmonton? and
3. Do the different phases of the SARS epidemic have an influence on the types of strategies utilized by the Chinese elderly, and why?

Significance of the Study

There is no research to date that has investigated the use of protective and preventive strategies against SARS from the perspective of Chinese elders in Canada. A literature review revealed a paucity of studies pertaining to how minority groups utilize alternative therapies in the prevention of illnesses. Both WM and TCM have been found to be popular among Chinese in Hong Kong, Taiwan, and Singapore, where both types of treatments are available. Folk beliefs and cultural differences must always be considered when developing interventions for ethnic minority groups.

A substantive theory (Glaser, 1978) that describes the process and characteristics underlying the use of Western and/or traditional Chinese protective and preventive strategies against SARS can be used by health care professionals to generate specific interventions for the prevention of the disease among Chinese elderly. The beliefs that each person holds regarding illness causation are important for nurses and other health care professionals to consider when planning care for the individual and their family (Leininger & McFarland, 2002).

Findings from this study will make a significant contribution to the existing literature and provide important and useful information for working with ethnic minority groups across Canada. This developed theory can be used with other studies in the area of health services utilization among Chinese elderly in an attempt to understand further the strategies utilized by ethnic elderly in the prevention of infectious diseases. Finally, results can be used to develop new health care policies that will facilitate the maintenance of health among the Chinese elderly in Edmonton and worldwide.

Summary

To date, no researchers have investigated the process of using Traditional Chinese and Western health-promoting strategies against SARS among the Chinese elderly. As well, there has been no research conducted into the use of preventive and protective strategies against SARS from the perspective of the Chinese elderly living in Edmonton, Alberta. This study will shed light on the nature of the underlying reasons for the use of protective and preventive strategies against SARS. In this study, I have focused on the belief and knowledge of the causation of SARS from both the Western and Traditional Chinese point of views to understand the use of specific strategies against the disease among the Chinese elderly in Edmonton, Alberta.

CHAPTER II

LITERATURE REVIEW

In this chapter, I will first review the literature regarding SARS and its transmission to Canada. I will then discuss the history of migration of Chinese to Canada, the Chinese elderly the Chinese Canadian family and the elderly Chinese in Canada. I will briefly describe the traditional Chinese values, primarily filial piety and Confucianism and their effects on the Chinese families and community. Foundations of Traditional Chinese Medicine (TCM) and disease causation according to the TCM's perspective, the theories of *Yin Yang* and *Wu Xing* (陰陽五行) will be described. In particular, the contagion of SARS from the TCM perspective, the prevention and treatment of SARS according to TCM will be described. Finally, I will describe the Western perspective of SARS, including the prevention and protection recommendations and treatments from the Western perspective.

The literature review presented here about SARS is not in an orthodox form, as few studies have been conducted to date on the topic of prevention of and protection against SARS from the perspective of the Chinese elderly in Canada. SARS is a new disease for which there is presently no definitive treatment, and the disease is difficult to diagnose because its symptoms resemble many respiratory infections. The first reports about the disease appeared on-line in March 2003, and by the end of the year more than 1,000 indexed articles had been published (Rainer, 2004). Many of these articles focused on identification of the pathogen(s) responsible for SARS, its clinical and epidemiological features for early and accurate diagnosis, the mechanisms of transmission, risk factors for contracting SARS, and management of the disease (see for instance Abdullah, Tomlinson, Cockram, & Thomas, 2003; Drosten et al., 2003; Jernigan et al., 2004; Rainer, 2004; N. Lee et al., 2003; Poutanen et al., 2003; Tsang et al., 2003; Twu et al., 2003; Wu et al., 2004).

Initial research studies on any infectious disease often concentrate on the identification of the causative agent, as this information is necessary for rapid and accurate diagnosis and treatment. To control the spread of any infectious disease, information on its modes of transmission is vital before effective prevention and protection strategies can be implemented. This was especially important in the case of SARS because of its rapid spread and heavy toll among health care workers. It has been reported that worldwide 21% of all SARS infection occurred in health care workers; and this figure doubled to 43% in Canada (Bloom, 2003). Thus, prevention of SARS is especially crucial, but research into prevention of the disease remains scarce to date. This study on the use of preventive and protective strategies among Chinese elderly from their perspective is one of very few that has addressed SARS from the lay perspective.

For the purpose of this literature review, I have identified and reviewed the relevant descriptive and empirical literature on SARS in the disciplines of nursing, medicine, sociology, education, and social sciences. The material was published mainly between December 2003 and September 2004.

Computer searches were directed by the use of the keywords SARS, prevention/protection, elderly, Traditional Chinese Medicine, routes of transmission, infectious disease, and infection control, and were conducted in the following databases: CINAHL, MEDLINE, Pub Med, and ERIC. In addition, databases from the U.S. Centers for Disease Control (CDC), WHO, and Capital Health Authority (CHA) (the health authority responsible for Edmonton and Northern Alberta) were also searched for information and recommendations for the prevention and protection of SARS.

Severe Acute Respiratory Syndrome (SARS)

In this section, I will review the history and epidemiology of SARS and the spread of SARS to Canada.

History of SARS

SARS is an emerging infectious disease that affects the pulmonary system rapidly. It often results in the acute respiratory distress syndrome (ARDS) (Lee et al., 2003; Zou et al., 2004) and can progress to multiorgan failure during the late stage of the disease (Lee et al., 2003; Drosten et al., 2003; Poutanen et al., 2003). Morse (1995, 1999) defined "emerging infectious disease' as an infection that occurred suddenly in a population or one that is increasing its presence over a wide geographic range. Under such definitions, SARS would be categorized as an emerging disease (Morse, 2004). SARS is the most recent example of a new disease to have emerged in the 21st century, although WHO has reported more than 30 previously unknown diseases caused by viruses or bacteria in 1998. Examples include the Ebola virus (1997); Legionnaire's disease (1997), *E.coli* 0157:H7 associated hemolytic uremic syndrome (1982); HIV/AIDS (1983); hepatitis C (1989); and H5N1 influenza A, more commonly known as avian flu (1997).

From the perspective of Western physicians and epidemiologists, SARS is a new disease that made its first appearance in February 2003. However, from the perspective of Traditional Chinese Medicine (TCM), SARS is not a new disease and may be categorized as a reemerging disease (Professor P.C Leung, personal communication, May 6, 2004). Reemerging diseases are those that have been discovered in the past but now have spread to other geographical areas. An example of a reemerging disease includes West Nile, which was first discovered in Uganda in 1937 (Peterson & Roehrig, 2001) but appeared in the United States in 1999 and in Canada in 2001 (in dead birds), with the first human case of West Nile infection in Canada in 2002 (Health Canada, 2003).

The Center for the Prevention and Control of Diseases in China categorized SARS as a form of *wen bing* (溫病) (Leung, 2004). Wen bing (溫病), a "disease with temperature," is an important specialty within TCM (Professor P.C. Leung, personal communication, May 6, 2004; S. Tse, personal communication, May 7, 2004). Diseases with temperature had been well described in *Shang-han Lun* (傷寒論) written during the *Han* dynasty (漢朝) by *Zhang Zhong-jing* (張仲景) one of the forefathers of TCM (Professor Q.M Chen, personal communication, July 16, 2003; Dr. F.C. Lei, personal communication, July 22, 2003). Shang-han Lun (傷寒論), a classic volume in TCM, described the cause and treatments of typhoid in great detail but, in reality, encompassed diseases that are probably of an infectious nature (Professor P.C. Leung, personal communication, May 6, 2004). During the *Ming* dynasty (明朝) and *Qing* dynasty (清朝), Zhang's students refined and expanded his concepts, and organized them systematically into the study of wen bing (溫病), which is now considered the most important branch of TCM (Professor Q.M. Chen, personal communication, July, 16, 2003; Dr. F.C. Lei, personal communication, July 22, 2003; Professor P.C Leung, personal communication, May 6, 2004).

According to Shang-han Lun (傷寒論), wen bing (溫病) were diseases accompanied by fever that often appeared at a change of seasons, when weather changes were expected, that is between spring and summer and between autumn and winter. These feverish diseases were considered contagious among household members and, later, outside the family to others in the community (Kuriyama, 2000; Professor P. C Leung, personal communication, May 6, 2004).

Because SARS is categorized as a form of wen bing (溫病) by the Center for the Prevention and Control of Diseases in China (Leung, 2004). Its treatments would naturally follow protocols subscribed for wen bing (溫病) and consist of the use of herbal medicines (Professor Q.M Chen, personal communication, July, 16, 2003; Leung, 2004). TCM practitioners argued that as diseases with similar signs and symptoms to SARS were documented in the Shang-han Lun (傷寒論), SARS is a re-emergent disease. From a Western perspective, on the other hand, the pathogen responsible for SARS and its routes of transmission must be established before preventive and protective strategies against the disease can be implemented. This will be discussed in the section on the epidemiology of SARS.

WHO first issued case definitions for SARS in March 15, 2003, as follows: ‘An individual with fever and respiratory symptoms such as a cough or shortness of breath was considered a suspect case. A probable case was someone with close contact with an individual diagnosed with SARS and a history of travel to a SARS-affected country, or a suspected case with x-ray findings of pneumonia' (WHO, 2003d). WHO revised its SARS definitions on May 1, and under the new definitions, a suspected case was required to have a fever, cough, or shortness of breath, a clear epidemiological link, and an absence of other alternative diagnosis for the individual's symptoms. A probable case of SARS would include all the criteria for a suspect case plus x-ray, laboratory, or autopsy findings consistent with the disease (WHO, 2003d). From the WHO's case definition, it was clear that a clinical/epidemiological link was important to ascertain SARS, as a laboratory test is still not available (HC, 2004). The WHO case definitions are not flawless, however, as reports from Hong Kong and Singapore reported that up to 75% of patients in the early phase of the disease would be missed using the WHO criteria (Fisher, Lim, Lim, Singh, & Tambyah, 2003; Rainer et al., 2003). It is argued that diagnosis of SARS is difficult because of its nonspecific symptoms (Abdullah et al., 2003). The problem is worsened when individual countries develop and use their own case definition and diagnosed SARS based on the developed case definition (Rainer et al., 2003).

Understanding the causes of SARS and its symptoms has evolved from its symptoms of fever and shortness of breath to diagnosis of the disease using serological tests so that rapid interventions can be implemented. Many scientists worldwide have contributed to reaching the current understanding of SARS, but much work is still needed, as there are still no definitive treatments, and information on how the disease spreads from animals to humans is still unknown.

Epidemiology of SARS

It is now been established that SARS first originated in the province of Guangdong in southern China in November 2002 as a form of atypical pneumonia (非典型肺炎) (Abdullah et al., 2003; Christian et al., 2004; Drosten et al., 2003; Hynes-Gay, Bennett, Sarjoo-Devries, Jones & McGeer, 2003; Jernigan et al., 2004; Leung & Ooi, 2003; WHO, 2003b). The first victim of a mysterious illness originated in the city of *Foshan* (佛山) in the southern province of Guangdong, where the disease was known as infectious atypical pneumonia (非典型肺炎), later labeled Severe Acute Respiratory Syndrome (SARS) by the WHO. This first case and other similar ones did not receive international attention initially; until February 2003, they were treated as cases of common cold and influenza. SARS remained contained in China from November until February 21, 2003 (Christian et al., 2004), when a physician from Guangdong became ill while staying on the ninth floor of the Metropole Hotel in Hong Kong (Tsang et al., 2003). This physician became the index case of SARS and, in turn, infected 11 others, including 7 hotel guests who were staying in rooms on the same floor as the physician (Tsang et al., 2003). These 11 individuals then became index cases and transferred SARS to Vietnam, Singapore, Canada, Ireland, and the United States (Wenzel & Edmond, 2003), and created epicenters of SARS outside of China (WHO, 2003e). As SARS moved from southern China, Hanoi, Hong Kong, Singapore, and Toronto became the "hot zones" for the disease, and the number of individuals affected by SARS escalated worldwide.

Between February 1 and March 31, 2003, SARS was diagnosed in more than 1,800 patients in 17 countries (Gerberding, 2003). As the number of countries affected by SARS increased to 21 by April 14, 2002, the WHO declared SARS an evolving epidemic and reported 3,169 confirmed cases and 144 deaths (WHO, 2003). As of April 17, there were 3,389 cases, and the death toll was 165 in 27 countries; the mortality rate was estimated at 4.9 % (Wenzel & Edmond, 2003). Scientists around the globe eventually realized that SARS had become a pandemic and had spread through travel, mainly by air, to at least three continents (Reilley, Van Herp, Sermand, & Dentico, 2003). The number of infected individuals continued to climb, and the mortality rate increased to around 10% globally, 50% for those over the age of 65 (Donnelly et al., 2003, Wang & Jolly, 2003). In addition, SARS was spreading quickly among health care workers and those who had close contact with infected individuals.

The rate of spread of an epidemic and whether it will be sustained depends on the basic reproduction number (R_0), i.e., the average number of cases infected by one index case in a susceptible population (Donnelly et al., 2003). By the time the epidemic was declared under control in September, 2003, SARS had spread to 32 countries and across five continents, with 8,422 infected with and 916 dead as a result of the disease (WHO, 2003a).

It is understandable that SARS created a panic among international communities, with its high rate of infectivity and rapid spread through air travel, and because it caused illness in a large number of exposed medical and nursing personnel worldwide (Centre for Disease Control [CDC], 2003a; Chen et al., 2005; Maunder et al., 2003; Nicolle, 2003;

Seto et al., 2003; WHO, 2003b; Verma et al., 2004). There was great urgency for medical communities around the world to identify the pathogen(s) before the epidemic got out of control and to find a cure. As a result, the SARS Working group was established. Scientists from SARS-infected countries together with the U.S. CDC reported that a new coronavirus (SARS-CoV), a strain of the common cold virus, was responsible for the deadly disease (Ksiazek et al., 2003). Genetic analysis of SARS-CoV suggests that the virus differs from the currently known groups of coronavirus (Drosten et al., 2003; Holmes, 2003; Marra et al., 2003; Rota et al., 2003). Another important finding reported was that the initial 19 SARS patients in all the affected countries were linked epidemiologically either directly or indirectly to the SARS outbreak in Hong Kong and Guangdong (Ksiazek et al., 2003). This further confirmed that Guangdong was the source of the SARS outbreak. Scientists around the globe concluded that rapid isolation and early accurate identification of the SARS coronavirus was essential for controlling the epidemic (Che et al., 2004, Nitsche, Schweiger, Ellerbrok, Niedrig & Pauli, 2004). Although the medical profession has successfully identified the agent responsible for SARS as a member of the coronavirus family (SARS-CoV), however, knowledge about the epidemiology and ecology of the infection remains extremely limited. Researchers warned that such efforts to control SARS require time, thus making preventive strategies against SARS a priority at this time for controlling its spread.

With the advancement of medical technology, outbreaks of infectious diseases often do not reach pandemic proportions, as they can be treated or confined to a certain geographical area. An example of such containment is the Ebola outbreak in central

Africa. Humanity has had experience with infectious disease since the 6th century, when the bubonic plague first spread through the Middle East and the Mediterranean (Dols, 1977; Hirst, 1953). The second epidemic of the plague took place in the 14th century, and was best known as the Black Death. It occurred in 1347 in western Asia and spread to the Middle East and the Mediterranean, progressing on to Spain and France before finally taking its toll in England, Scandinavia, Germany, and Poland (Dols, 1977; Ziegler, 1969). The plague again appeared in Canton and Hong Kong in 1894 and spread to India in 1896, Vietnam in 1898, and Japan in 1899 (Hirst, 1953). This third plague greatly exceeded the geographic scope of the previous two epidemics. The speed of the epidemic could be attributed to the increased traffic among countries that accompanied the shipping trade worldwide in the late 19th century, carrying the plague from Asia to the distant ports of San Francisco and Glasgow, and precipitating a pandemic that lasted well into the 20th century (Hirst, 1953).

Infectious disease was not foreign to China, as it was speculated that the third plague originated in the late 18th century in *Yunnan* Province (雲南省). The earliest documented epidemic that might have been the plague began in Yunnan (雲南) in the 1770s (Benedict, 1996). This plague spread slowly between 1772 and 1830 along the western frontier of Yunnan (雲南)to the more heavily populated areas in the center and southeast regions of the province. The plague was contained for a short time but then reappeared in the mid-19th century. It spread east during the 1860s to *Guangxi* province (廣西) and, in the 1870s, to Guangdong, and reached the Pearl River Delta in 1890s (Benedict, 1996). The term *shuyi* (鼠疫) ("rat epidemic") was used by Chinese physicians in the late 19th century to describe the disease, as it was spread by rats. China has had experiences with epidemics before, and the terms *yi* (疫) ("epidemic") or *daiyi* (大疫) ("major epidemic") are used to describe the spread of present-day infectious diseases. Thus, infectious diseases made their presence felt centuries ago and are not foreign to the medical professions in China. However, the speed of their spread depends greatly on the development of relationships and improvement of transportation between countries.

The initial appearance of SARS in late November 2002 did not arouse worldwide concern, as the medical profession did not know the extent of the virulence of the SARS virus. However, it is not accurate to compare SARS to the plague, as medical knowledge was limited and people resorted to the use of witchcraft with the plague. In addition, the spread of the plague was much slower than that of SARS, as evidenced by the spread of SARS to 32 countries within days.

It would also be incorrect to assume that the SARS outbreak was the first infectious disease that has caused problems for Asia. In the past 5 years, East and Southeast Asia have witnessed an array of outbreaks of infectious diseases, such as the bird flu (H5N1 influenza) in Hong Kong in 1996 to 1997; human enterovirus 71 in Malaysia, Taiwan, and Singapore in 1997, 1998, and 2000, respectively; and Nipah virus in Malaysia and Singapore in 1998 and 1999 (Ooi, 2003). All of these diseases have one thing in common with the outbreak of SARS: None had any prior etiological agents, and as a result, new viruses were identified as the causative agents. Further, Ooi (2003) argued, with the exception of SARS, the above diseases were confined to small geographical areas in specific parts of Asia and therefore did not gain the same international recognition as SARS.

To date, SARS remains elusive to the medical professions, as no definitive treatments are currently available (Holmes, 2003). The use of ribavirin and corticosteroids for treating SARS remains controversial (Zhaori, 2003), and severe adverse reactions associated with the use of ribavirin has been reported (Booth et al., 2003). Clinicians have argued the use of HAART (highly active antiretroviral therapy) should be considered for the treatment of SARS (Chen & Cao, 2004). In view of the present inconsistencies relating to the treatment and management of SARS (Breiman et al. 2003), preventive strategies against SARS, therefore, become the best alternative available to combat the disease at this time. The mortality of SARS has been reported to be close to 50% for individuals over the age of 65 (CDC, 2003; WHO, 2003). Therefore, it is useful and important to gain an understanding of the protective and preventive strategies utilized by Chinese elderly against SARS.

SARS in Canada

SARS was first reported and confirmed in Canada in early March 2003 (Naylor, Chantler & Griffiths, 2004); the first cases were members of a multigenerational family of Chinese descent who live in Toronto (Poutanen et al., 2003). Five members of the household were initially infected with the SARS virus; the index patient was later confirmed to have been in Hong Kong with her husband from February 13 to 23 and had stayed on the same floor of the Metropole Hotel as the index patient from Hong Kong. This Canadian index patient was a 78-year-old woman with a history of type 2 diabetes and coronary heart disease; she had a fever, sore throat, and mild nonproductive cough 2 days after returning from Hong Kong (Poutanen et al., 2003). Health care professionals did not note this connection immediately; the patient was later seen by her family physician, who did not report any other concerns at that time. The patient's status continued to deteriorate, however, and she died at home 3 days after the onset of symptoms, on March, 5, 2003 (Loutfy et al., 2004). The index patient's son, who had a history of type 2 diabetes and hypertension, developed a fever of 39.8 °C and diaphoresis 2 days after the onset of his mother's symptoms. He was initially managed by the family doctor, but because of his persistent symptoms, he was admitted to the hospital with a diagnosis of community-acquired pneumonia with a possible diagnosis of tuberculosis. He died of multiorgan failure on March 13, 2003 (Poutanen et al., 2003), and multiorgan failure had been reported as a cause of death during the late stage of SARS (Drosten et al., 2003; Lee et al., 2003). A diagnosis of SARS was made retrospectively for these two patients, and five individuals who had contact with the two diseased patients also contracted the disease. This constituted the first cluster of SARS infections in Canada, which involved spread in the hospital to which the second patient was admitted. Almost 100 health care professionals in three different hospitals in the Greater Toronto Area (GTA) were subsequently infected through this patient. The quick spread of SARS to such a large number of health care professionals was later attributed to a lack of implementation of isolation precautions at the beginning of the SARS outbreak in Toronto (Dwosh, Hong, Austgarden, Herman & Schabas, 2003; Varia et al., 2003).

The second wave of SARS infection in Canada was reported on May 23, 2003, at the North York General Hospital (NYGH), which resulted in another 90 confirmed SARS cases and more than 9,000 affected (Loutfy et al., 2004). The patient responsible for the second SARS outbreak was a 96-year-old man admitted initially to the same hospital as the first patient in the initial SARS outbreak (CDC, 2003c). This outbreak of SARS cases was again attributed to a lack of utilization of isolation precautions for SARS. Between April 15 and June 9, another 74 SARS cases were reported to the Ontario public health service; the NYGH was responsible for the transmission of 90% of these cases (HC, 2003b; WHO, 2003b). These two epidemic waves of SARS resulted in a total of 251 probable and 187 suspected SARS cases and 43 deaths in Canada (St. John et al., 2005).

Thus, SARS transmission in Canada was largely restricted to health care settings, in particular acute care hospitals. In this case, patients infected with SARS were not recognized and isolated on admission, and no protective and preventive measures were implemented to control the spread of SARS at the time. Among 438 probable and suspected SARS, over 100 were health workers (HC, 2003b; McGillis-Hall et al., 2003). The high rate of infection among health care professionals was reflected in two studies in which the rate of SARS infection ranged from 10% for the intensive care unit to 22% for the emergency unit and 60% in the cardiac care unit (Varia et al., 2003). Anecdotal evidence indicates that transmission of SARS can occur in individuals who had very brief contact with severely ill cases (WHO, 2003e). This could be explained by the heavy viral load these patients were carrying at the time, making them more prone to infecting others.

Chinese Immigrants in Canada

Canada is a multicultural society. In 1996, there were more than 5 million immigrants in Canada representing 17% of the Canadian population (Statistics Canada, 1997). Since 1991, more than 70,000 immigrants have settled in Alberta, and by 1997, 27,270 had chosen to settle in Edmonton (Statistics Canada, 1997). It was estimated that in 1996, immigrants from Asian countries made up 57% of the immigrant population (Statistics Canada, 1997) and are rapidly becoming the largest specific visible minority (i.e., non-White, non-Caucasian, and non-Aboriginal) group in Canada (Samuel, 1992). The number of Chinese immigrants will continue to increase in the United States and Canada, and by 2050 is predicted to reach 41 million from the present 9 million (Statistics Canada, 2004).

The number of Chinese Canadians has steadily increased over the past decade, in part because of uncertainty concerning the political future of Hong Kong, which, in 1997, was returned to the Peoples' Republic of China (PRC). As a result, thousands of Hong Kong Chinese immigrated to other countries, and for many Canada was their first choice of destination (Dawson, 1991). The number of Chinese immigrants increased from 6,451 annually in 1981 to 28,954 in 1990 (Employment and Immigration Canada, 1987, 1990). There has also been a steady increase in the number of immigrants from PRC and Taiwan (Lai & McDonald, 1995), and the situation is similar in Edmonton (Statistics Canada, 1998). In 1981, the total Chinese population in Canada was estimated at 289,245. This had increased to 424,040 in 1986, and the number was further projected to increase to 1.3 million by 2001 (Samuel, 1992).

With the exponential increase in the number of Chinese Canadians, the number of Chinese Canadian elderly has tripled in the past three decades (Gee, 1996). The Chinese Canadian elderly differ from other immigrant elderly, in that about 33% of them immigrated to Canada at an average age of 65 or older compared to 4% for European countries (Statistics Canada, 1997). Research conducted in Australia reported that older ethnic Chinese are more likely to have been brought over to their host country by their children, who had immigrated earlier (Quine, 1999). The situation is similar in Canada; many Chinese elderly were reunited with their family members under the family unification program in the mid-1970s.

Migration of Chinese to Canada

The People's Republic of China has a population of more than a billion. There are many provinces in the PRC, each with its own unique languages and dialects, and some also have their own cultural beliefs. China's civilization is more than 5,000 years old and has influenced many Asian countries.

Chinese immigration to Canada dates back to 1856 and can be divided into four distinct periods. The first wave of Chinese immigrants to North America arrived in San Francisco (舊金山) ("Old Gold Mountain") in 1849. When after a decade, the gold mines of California were exhausted; Chinese immigrants looked for another opportunity. When word came out in 1858 of gold in the Fraser Valley, many Chinese immigrants from California ventured north to seek their fortune and opportunities in Canada (Con & Wickberg, 1982).

The period 1858 to 1884 was the era of unlimited entry into Canada. Chinese immigrants began to arrive directly from China in 1860 in large number because of a severe shortage of labor in Canada. Many were of peasant background and came from the coastal provinces of Guangdong and *Fujian* (Lai, 1975). These early Chinese immigrants had little knowledge of Canada; they were brought over by contractors to fill the labor shortages for labor-intensive projects, such as railroad construction, mining, and forest clearing. As there was a demand for these laborers, the Chinese population in Canada rose sharply, and the number arriving in Victoria rose to 13,245 from 2,326 three years earlier (Li, 1979). Despite the great contribution these early Chinese immigrants made to Canadian society, they never considered themselves a permanent part of it.

Chinese immigrants in the early 19th century came for purely economic reasons. Many decided to leave China to escape economic depressions and hardships. Not only were they willing to work hard, jobs were abundant, and the wages offered in Canada were higher than those in China (Lai, 1988). They dreamed of a better life in Canada but actually traded poverty and social unrest at home for a life of hard labor and racism in their adopted country. The term *kuli* (苦力) ("bitter strength") is used commonly to describe the hard work these early Chinese immigrants had to endure in North America.

Once these projects were finished, the number of Chinese immigrants decreased accordingly, as they were seen to be competing with their White counterparts for jobs, which were not as plentiful as before. Hostility toward the Chinese increased, and in 1885 the Canadian government bowed to political pressure and passed its first anti-Chinese legislation aiming at restricting the number of Chinese entering Canada (Li, 1979).

The Chinese Immigration Act initially imposed a $50 head tax on all Chinese entering Canada in 1885. This aimed to deter the Chinese from coming to Canada. This tactic did not work, however, and in 1903, the tax was further increased to $500 (Hardwick, 1975; Kung, 1962; Statutes of Canada, 1903). Again, it proved futile; Chinese continued to arrive in large numbers in British Columbia (Lai, 1988). After World War I, Canada experienced a severe economic downturn; many factory workers were laid off, and returning soldiers were unemployed. This marked the beginning of another period of anti-Chinese sentiment, with Whites blaming Chinese laborers for taking their jobs (Con & Wickberg, 1982). This sentiment intensified and started to spread to other parts of Canada when many Chinese left British Columbia and moved east. The anti-Chinese sentiment became so widespread that the federal government passed the Chinese Exclusion Act in 1923 to bar all Chinese from entering Canada; it was in effect from 1924 to 1947 (Lai, 1988). This Act successfully curtailed the influx of Chinese, and the number of Chinese dropped to 0.3% of Canada's population from the 0.45% of 10 years earlier (Statistics Canada, 1987).

Negative sentiments toward the Chinese began to subside in 1937, and support for the Chinese community increased when China became an ally of Canada and the United States after the outbreak of war in the Pacific in 1941 (Lai, 1988). The South Pacific war signaled a change in the American's government attitude toward Chinese immigration as well; subsequently, the United States Chinese Exclusion Act was abolished in 1943, and an annual quota of 105 Chinese immigrants was established (Sung, 1967). The Canadian Chinese Exclusion Act was finally repealed in 1947, when Chinese veterans demanded equal treatment after the war and Chinese people living in Canada lobbied against the Act (Statutes of Canada, 1947). The control of Chinese immigrants was regulated by an order-in-council (PC 2115) that stipulated that Chinese Canadian citizens could apply for their spouses and unmarried children under age 18 to come to Canada. This period of selective entry began in 1948 and continues today. It is clear that Canada's immigration regime follows a "swinging door" policy, with the door wide open when the country needs labor and tightly shut when there is a shortage of jobs. Recently, Chinese immigrants have been admitted mainly based on their merits, and the number of immigrants of Chinese origin is now increasing.

The Chinese Canadian Family

Chinese immigrants who came to Canada in the early 19th century often came alone, as many could not afford to bring their family and they endured much hardship and loneliness (Pettigrew, 1988). Thus, before the end of World War II, a normal family life was rare among Chinese Canadians, and the Chinese community consisted of "married-bachelors," who provided financial support for their families in China (Hoe, 1976).

Before the Exclusion Act of 1923, most Chinese immigrants had lower income and came from rural areas. They knew little of the host country and had no intention of staying long-term. Conversely, Chinese immigrants arriving after 1967 came mainly from Hong Kong and Taiwan. Unlike their predecessors, many came as independent immigrants and were admitted because of their educational background, occupational skills, knowledge of English, and personal skills. Immigrants qualifying under the business scheme were generally fairly affluent, whereas there was a greater range of incomes among those coming under the family reunification scheme. Chinese immigrants who came in the 1970s often came to Canada with their families because of education and economic opportunities for themselves and their children.

The changes in immigration laws allowed for increased diversity in the types of immigrants arriving in Canada, from Asian countries in particular. In the 1990s, the majority of immigrants arriving in Alberta originated from either Asia or the Middle East and made up 55% of immigrants in Edmonton between 1981 and 1991, a jump from 4.1% in the 1960s (Statistics Canada, 1997). Between 1985 and 1990, about 40% of immigrants arrived in Alberta under either family immigrant status (mainly the Chinese elderly) or business immigrant status (self-employed, entrepreneurs, and investors). Edmonton played host to 42% of these newcomers in any of those years (Edmonton Community and Family Services, 1996). As a result, there is great diversity with regards to socioeconomic status among Chinese immigrants in Edmonton.

Elderly Chinese in Canada

According to the immigration pattern of Chinese to Canada previously discussed, there are two groups of elderly Chinese living in Canada depending on when they came to Canada. The first group consists of those who came on their own before the enactment of the Exclusion Act in 1923 and were mainly laborers. These seniors (mainly men) often came alone and have little family support. On arriving in Canada, these then young men often lived in boarding houses around Chinatown either in Victoria or Vancouver, for various reasons. The companies they worked for often built boarding houses around Chinatown, as the rents were low. Further, newly arrived Chinese often chose to stay there because it reminded them of home, as Chinese food was available and Chinese ways were preserved. Many of these men chose to stay and live in Chinatown all their life, as they established friendships with other men and often received support from the Chinese associations (Lai, 1975). Many depended on friends and formed associations to provide each other with support. These elderly can be considered a group that have grown old in Canada but still retained a very Chinese way of life.

The second group, which comprises the majority of the elderly in Canada to date, consists of those who came to Canada when they were older. The number in this group is increasing as more Chinese elderly join their children who came to Canada years before. Most families in Canada are dual income, and the elderly who come as dependents of their children will likely stay home and care for the grandchildren and the house. These responsibilities are usually not expected of these elderly when they live in Hong Kong; there is then an inequality related to materialism, which Gee (1996) has labeled "deprivation." As well, Chinese elderly who have a strong ethnic identity might find their ethnic origin intensifies problems in their host country. However, identifying with their ethnicity provides the Chinese elderly with support and resources within the Chinese community, which can assist them in adjusting to their life in Canada (Cool, 1981). Gee (1996) argued that Chinese elderly who retain their ethnic identity and networks are better equipped to cope with stress related to aging. However, it is important to consider where the Chinese elderly reside. Elders who live in or near Chinatown are more likely to meet other Chinese and engage in activities such as going to *dim sum* (點心) (Chinese brunch) or playing a game of *ma-jiang* (麻雀) (a favorite game among Chinese elderly)

Those who live with family members will be less likely to meet with others, as they generally live further from Chinatown and have to care for their grandchildren.

Traditional Chinese Values

In the following section, I will discuss traditional Chinese values that play a role in the development of responsibility among Chinese elderly toward their family and vice versa, and the respect and responsibilities to the community. In particular, the value of filial piety and the influence of Confucianism will be discussed in detail.

The Value of Filial Piety

Chinese social structure considers the family to be the most important influence on the individual. The emphasis on family unity and harmony among members of the extended family is of utmost importance to the Chinese (Ho, 1987; Zinn & Eitzen, 1990). The traditional Chinese family is predominately patriarchal and is greatly influenced by Confucius's (551-479 BC) teachings of moral and ethical principles. A person's life is often shaped by responsibilities associated with his or her parents, siblings, and members of the extended family. Confucius was the most respected Chinese philosopher during the *Spring and Autumn Period* (春秋戰國) (722-481 BC) in Chinese history. Confucian moral teaching was later adopted by the Han Dynasty (漢朝) as the official moral and political doctrine of the state (Ross, 2003). At that time, Confucianism was so popular and widespread that together with Taosim and Buddhism, it formed the Three Ways to guide the Chinese during the Han Dynasty (漢朝). Confucianism exerted such a dominating ideological influence in ancient China that it is often referred to as Ru jiao

(儒教) (the religion of Confucianism) (Feng & Shi, 2001). However, although some would argue that Confucianism is a philosophy more than a religion, it is certain that the Confucian moral teachings of filial piety have exerted great influence in China and many Asian countries.

The Classical Concepts of Filial Piety

The root meanings of filial piety can be found in four classical Chinese books: the Book of Rites (*Li Jing*) (禮經), Analects of Confucius (*Lun Yu*) (論語), the Teachings of Filial Piety (*Hsiao Jing*) (孝經) and the *Works of Mencius* (*Meng Shu*) (孟書). All four books have one goal: to teach individuals to recognize the proper and expected way to provide care for their parents. Each book provides precise instructions on how to pay respect and provide care for one's aging parents. Although the four books all refer to filial piety, each has a different emphasis; together, they encompass the main teachings of Confucius in relation to filial piety. These four classical books were used widely to educate laymen and guide relationships among family members and others in the community.

Li Jing (禮經) *The Book of Rites* teaches an individual to act in a proper and moral manner toward one's parents and friends.

Lun Yu (論語) *Analects of Confucius* records the sayings and deeds of Confucius on philosophy, education and moral cultivation.

Hsiao Jing (孝經) *Teachings of Filial Piety* includes guidelines for the practice of filial piety. It includes expectations of a filial son and was used extensively in the school system during the Han and Ming dynasties.

Meng Shu (孟書) *Works of Mencius* also teaches the importance of filial piety according to Mencius' interpretation on the topic (Ware, 1955).

Details of these books can found in Appendix I.

The main canon of classical filial piety pertains initially to the relationship between children and parents. Sung (2001) explored the Confucian literature and identified 13 types of filial piety or respect toward elders. The 13 forms of respect are care respect (providing care and services to the elderly), victual respect (serving foods and drinks based on the elder's request), gift respect (conferring gifts on elders), linguistic respect (using respectful language when speaking to elders), presentational respect (maintaining courteous appearances), spatial respect (providing elders with honorable seats at celebrations), celebrative respect (celebrating events such as birthdays in honor of elders), public respect (respect all elders of society), acquiescent respect (being obedient and carry out the elder's wishes), salutatory respect (greeting elders with a pleasant temperament), precedential respect (giving preferential treatment to elders), funeral respect (holding appropriate funeral rites for one's parents), and ancestor respect (ancestor worship) (Sung, 2001). These 13 forms of respect together reflect the principles of Confucian filial piety.

Individuals from other cultures often perceive filial piety as pertaining only to parents and children. However, Confucius's filial piety not only consists of showing respect for the parents but also underscores five types of relationships. To understand how filial piety is applied to other relationships, one needs to understand the basic moral principles of Confucianism.

Basic Moral Principle of Confucianism

The basic moral principle of Confucianism was simple: Confucius advocated *r'en* (仁) (Chinese term signifying benevolence, charity, humanity, love, and kindness). R'en is the fundamental virtue of Confucianism, and Confucius defined it as *A'i R'en* (愛仁) ("to love others") (Lau, 1979). Confucius also stressed the importance of *hsiao* (孝) ("honoring one's parents and filial piety"), *yi* (義) ("righteousness, right conduct, morality), and *li* (禮) ("propriety, politeness, good manners"). Yi is furthered broken down into two components: *shu* (恕) ("reciprocity, consideration for others, selflessness), demonstrated by 己所不欲，勿施於人 ("what you do not want done to you, you should not do to others"), and *zhong* (忠) ("doing one's best, conscientiousness, loyalty"). *Li* (禮) underscores the relationship between children and parents, students and teachers, employees and employers, and subjects and rulers. These virtues were all carefully recorded in Lun Yu (論語), the *Book of Analects*. The four virtues of r'en (仁), yi (義), li (禮) and hsiao (孝) exert their influence, especially on the Chinese elderly, to whom Confucian concepts were taught in schools and were imparted by their parents.

Conventionally, Chinese families start to instill the concept of filial piety in early childhood, as children are taught to respect their parents and to uphold their commitments to the family. Chinese families are normally patriarchal in nature; thus, Chinese society often idealizes the father-son relationship. This extends to interaction with others, for example physicians and patients. Parents expect children to fulfill certain filial obligations that help to define the roles of each sibling. The virtue *hsiao* (孝) exerts its influence on the family, and as such, the oldest son is expected to take care of the parents in terms of financial assistance and accommodation. Respect is shown to members of the family depending on seniority, and children must carry out the wishes of their parents and continue their unfinished business. Children are expected to maintain the culture of the family and continue the family name. Thus, individuals must care for their parents and their children under the codes of filial piety.

Because of Confucian teaching, the cohesiveness of the nuclear and extended family is venerated within Chinese society. It is likely that such values would remain intact among Chinese elderly living in Edmonton, because they migrated to Canada when they were older and would have received teaching in Confucian virtues. One must consider a wider application of the concept of filial piety, which extends beyond one's immediate family and can be used to guide an individual's relationships with others in the society.

Hsiao (孝), Confucius's filial piety, is the fundamental relationship between parents and children. Variations of hsiao (孝) are also the basis of five other sets of relationships, which include all social connections between individuals. These relationships are represented in Table 1, with the first three involving individuals within the family and the other three representing relationships outside the family.

Table 1: Relationships within and outside the Family (Sung ,1996).

	Set 1	**Set 2**	**Set 3**	**Set 4**	**Set 5**	**Set 6**
Superior	Parents	Husband	Elder brother	Ruler	Teacher	Friend
Subordinate	Children	Wife	Younger brother	Subject	Student	Friend

In each relationship, there are duties expected of both members. The superior member (parent, husband, etc.) is expected to act benevolently and care for his or her subordinate counterparts, and the subordinate member (child, wife, etc.), must listen and obey). The relationship between superior and subordinate members is clearly one of inequality, with the exception of the last set, which can involve equality only if the ages of the friends are similar. The six relationships require each member to observe his or her duties and be obedient; however, it is acceptable for the subordinate to refuse to do bad deeds.

Summary of Filial Piety

The concept of filial piety is well known and accepted in China and in many Asian countries. Filial piety is best recognized as hsiao (孝), which describes the correct way of behaving toward one's parents. *Hsiao* (孝) is the most important moral principle, according to Confucius. To the Chinese, it is the fundamental ideology that guides all attitudes and behaviors toward others, as well as those toward one's parents. Filial piety is considered a social virtue, and it has influenced other forms of relationships. An individual is expected to act with the community's best interest in mind. One needs to fulfill obligations not only to one's family but to the community as well. This is vital for the development of r'en (仁), or benevolence, which is the fundamental virtue of Confucianism. *Li* (禮), or propriety, is expected of individuals when interacting with others. Filial piety and its variations comprise a set of Confucian philosophical approaches and ethical standards that are used extensively in China.

The teachings of Confucius can be summed up as follows: to love others, to honor one's parents, to observe reciprocity when relating to others, and to practice righteousness. The practice of filial piety initially starts and is practiced at home but extends to members of extended families and to others in the community as well. Therefore, doing the right thing at home is expected, and such practice should be extended to the others in the community for the good of the whole society.

Foundation of Traditional Chinese Medicine (TCM)

The foundation and perception of TCM can be viewed both from a broad and from a narrow perspective. The broad perspective underlining TCM pertains to prevention of disease, clinical diagnosis, and rehabilitation. To achieve this, TCM utilizes the theory of Chinese medicine involving the use of medicines and prescriptions in a holistic way. This theory includes specifics at each of the three levels, which all interact, so that it is difficult to differentiate the individual levels clearly. The narrow perspective of TCM deals with knowledge concerning physiology of diseases, such as causation of diseases, symptoms exhibited by each disease, and the principles of prevention for individual disease. This has been a focus of research on TCM for the past 50 years; much information has been accumulated through the continuous effort to increase the understanding of interactions between human beings and nature within the scope of TCM (Lu, 1994).

The Principles of Yin Yang and Wu Xing (陰陽五行)

Yin yang (陰陽) and wu xing (五行) are the most basic concepts of TCM. These two concepts connect all aspects of TCM from physiology, etiology, and pharmacology to diagnosis, treatment and prevention of diseases. To understand and practice TCM, it is therefore important to recognize yin yang (陰陽) and wu xing (五行). The principles of yin yang and wu xing (陰陽五行) are utilized by the Chinese to explain and understand nature and to explain natural phenomena. According to Lee (2001), philosophy is a science that links nature, society, and the process of thought in the explanation of phenomena. TCM originated in ancient Chinese society and was influenced by philosophical beliefs at that time (Lu, 1994). In the following sections, a summary of the principles of yin yang (陰陽) and wu xing (五行) in relation to TCM is presented. Readers can refer to Appendix II for an in-depth description on both concepts.

It has been well established that the philosophy of TCM begins first with the principles of Yin and Yang (Ergil, 1996; Lui, 1988; Wallnofer & von Rottauscher, 1965). Yin and Yang represent two opposing and yet complimentary phenomena that are essential to maintain life. Yin is characterized as dark, earth, female, cold, water and metal. Yang on the other hand is conceptualized as light, heaven, male, warm, fire and wood. Yin and Yang are the essences that regulate the universe and exert influence on all living things including human beings. When applied to the human body, both the Yin and Yang energies must be in harmony to maintain health. The various parts of the body also correspond to the dual principles of Yin and Yang (陰陽) as organs are designated as either Yin (陰) or Yang (陽). These energies though opposite in nature require interdependence of each other to sustain health and to maintain life. Therefore, the principles of yin and yang (陰陽) when applied to TCM, emphasize the body as an organic whole, unified but with opposing aspects. Thus, all systems join together and cooperate closely with each other. This interdependence of Yin and Yang (陰陽) energies in relation to TCM is clearly illustrated in the following: "Substance corresponds to (陰), and function corresponds to Yang (陽)" (Liu, 1988, p.37).

The above statement describes how the human body works with respect to TCM. The substance in this case refers to physical objects within the body, and these include organs, blood vessels and body fluids and are categorized as Yin (陰) in nature. The physiological functions of these organs on the contrary are yang (陽) in origin. Thus, both the organs and their physiological actions are mutually dependent and one cannot exist without the other (Liu, 1988). The relationship between Yin and Yang (陰陽) is constantly changing to maintain equilibrium within the body. These two forces constantly support and consume each other in order to achieve a state of balance. If this balance is lost due to an over abundance or deficiency of either types of energies, imbalance will result in disease.

The second theoretical foundation of traditional Chinese medicine is the principle of the five elements. The ancient Chinese used the five basic materials familiar to all to symbolize the behaviors and phenomena of all objects in nature. These five elements are:

jin (金)(metal), *mu* (木) (wood), *shui* (水) (water), *huo* (火) (fire) and *tu* (土) (earth). The principle of the five elements describes relationships and interactions among these five elements. These elements are in constant motion and growth but each relationship involves only two elements thus resulting in a total of five sets of relationship: Water gives rise to wood, wood gives rise to fire, fire gives rise to earth, earth gives rise to metal and metal gives rise to water. These relationships are cyclical in nature and the five elements all promote and control each other.

The relationships of promoting and controlling between any two elements are functioning simultaneously to maintain balance and growth in nature. The theory of the five elements is a general statement about the structure and functioning of objects in nature. When applied to explain the physiological function of the body, it is necessary to include the understanding of the five organs (*wu zhang*) (五藏) which are analogous to the five elements. The five organs are: *xin* (心), heart; *gan* (肝), liver; *pi* (脾), spleen; *fei* (肺) lung; and *shan* (腎), kidneys. These organs are interrelated in promoting and controlling relationships as in the five elements. For instance, the liver corresponds to the wood element; it is thus promoted by the kidneys (signifies by the water element) as water is necessary for the growth of trees. In this case, the kidneys are seen to provide nourishment to the liver. The above example corresponds to a type of promoting relationship between the liver and the kidneys.

Similarly, the concept of control also applies to the five organs. For instance the liver (肝) (categorizes as a wood organ) normally controls the spleen (脾)(categorizes as an earth organ). A dysfunction in the movement of *qi* (氣)(vital force) due to a stagnant liver will require extra actions on the spleen as it results in the inability to use nutrients by the spleen (Liu, 1988). Thus, the symptoms exhibited are those of problems from the spleen but the main problem is with the liver. Therefore, practitioners of TCM can utilize the theory of the five elements in the diagnosis of diseases.

Other TCM causation for Diseases

In TCM, the cause of all diseases relates to the imbalance of energies within the various organs and the environment, which leads to the overall disharmony of the whole body. In TCM, diseases are ascribed to one of the following three causes: external, internal, or nonexternal/noninternal, as previously discussed. (Professor Q.M. Chen, personal communication, July 23, 2003; Ergil, 1996; Lee, 2003; Liu, 1988). Seasons and changes in the weather can have an influence on the body. The most pronounced effects are *feng* (風) (wind), *han* (寒) (cold), *huo* (火) (internal heat), *shi* (濕) (moisture), *shu* (暑) (heat), and *zao* (燥) (dryness). Excessive or extreme changes in the weather can harm the body and are referred to as the "six external disease causing factors," or the *liu yin* (六淫) ("the six evils").

Emotions also play a role in causing illness in TCM; the q*i qing* (七情) ("seven emotions"), which are *xi* (喜) (happiness), *nu* (怒) (anger), *you* (憂) (worry), *si* (思) (thought), *pei* (悲) (grief), *kong* (恐) (fear), and *jing* (驚) (fright). When these emotions become uncontrollable and overwhelming, they can cause illness and injure the vital organs. In TCM, the six external disease-causing factors (these are related to weather and environmental changes) interact with internal emotional factors (the *qi qing*) (七情); their combined effects on the body systems form the theoretical foundation for disease causation. To remain healthy, balance within the body must be attained or maintained between the individual and the environment. This viewpoint on disease causation and maintaining one's health is considered holistic and is widely accepted by the Chinese population.

Finally, the nonexternal/noninternal causes are dietary irregularities, excessive sexual activities, trauma, fatigue, and parasites (Professor Q.M. Chen, personal communication, July 15, 2003; Ergil, 1996; Reid, 1996; S. Tse, personal communication, May 9, 2004). Extreme indulgence in any type of activity is to be avoided, as it upsets the balance within the body and causes diseases.

Contagion from the TCM Perspective

The concept of contagion has a long history, dating back to the 3rd century, when China had numerous experiences with epidemics, as previously discussed. The poet Cao Zhi stated that pain was known to every family, as experiences with death were common to all families (Zhao, 1984). Evil spirits and supernatural beings were blamed for these misfortunes, and people often hung charms outside their houses for protection (Kuriyama, 2000). The term *yi* (疫) ("epidemic") recorded in the *Shiming Dictionary* (釋名字典) (Kuriyama, 2000) in the 2nd century, described circumstances in which there was no escape for individuals. The belief that evil spirits were responsible for such misfortunes became more popular when *Zheng Xuan* (鄭玄), a well-respected Han Dynasty (漢朝) scholar, declared that the sudden appearances of certain stars in the sky often signified the roaming of *ligui* (厲鬼), or demons that precede epidemics and other disasters (Zhao, 1984). Another interpretation was that the emperors had gone against the will of Heaven, resulting in disasters such as famine, flood, droughts, and plagues (Kuriyama, 2000).

However, not everyone subscribed to the belief that evil spirits and the bad deeds of the emperors were the cause of disasters. The Shang- han Lun (傷寒論), or Treatise on Cold-Damage Disorders, by Zhang Zhong-jing (張仲景), explained that diseases were caused by the impact of weather changes. Zhang devised a comprehensive system of disease diagnosis and treatment based on the premise that winds and harsh cold commonly inflict serious effect on the body (Wong, 2002). In the 12th century, *Chen Yan* (陳信) a well-known *Song* Dynasty (宋朝) physician, categorized diseases into three types: those with internal origin, those with external origin, and those of neither external nor internal origin (Lee, 2003). Diseases with an internal cause are those related to an excess of one of seven emotions, Qi Qing (七情): anger, grief, joy, fear, love, hatred, and shock. Illnesses with an external cause include those brought about by weather changes, such as wind, cold, dampness, and dryness. The third category of illnesses include those that are brought about by overeating, parasites, poisons, broken limbs, demons, and the effects of war and famine (Liu, 1988; Lu, 1994). Thus, according to TCM, the links between body, mind, and spirits have always been recognized in the conception of disease causation. People fell ill for many reasons, but it appears that external factors, such as the changes in weather, mattered most to the Chinese in relation to infectious diseases only (Kuriyama, 2000).

The explanations above summarize the traditional Chinese viewpoints on the causations of diseases from the TCM point of view. However, Kuriyama (2000) argued that one also must consider the role contagion plays in the cause of diseases, which was not well known when these treatises were written. This is important information, as it would shed light on the protective and preventive strategies used to prevent infectious diseases at the time and could provide insight into why some of the strategies are utilized today with our understanding of prevention of infectious diseases.

The concept of contagion is not well defined or evident in premodern China. However, there is evidence that individuals acknowledged the likelihood of disease transmission. The idea of being "contagious" was documented in the *Zhubing Yuanhou Zong Lun* (注病中論) by Chao Yuan-fang (巢元方) (Kuriyama, 2000), in which the author cites numerous examples to illustrate possible avenues of infection. Sources of infection recorded in the book included ingesting poison either knowingly or unknowingly, ingesting animals that have perished from epidemics, or contaminated open wounds. These were clearly documented in the following:

> Cows which die of epidemic diseases (yibing)(疫病) also contain poisons. If people eat their meat, they will suffer excruciating chest pains, extensive paralysis, vomiting, diarrhea, unbearable stomach cramps, and may die. (Zhubibg Yuanhou Zong Lun, p. 103, cited in Kuriyama, 2000).
>
> The sweat, horsehairs, dirt, urine, and leather saddle blanket all can contain poisons. If the poisons enter the sore, they can cause inflamed swelling, aches and pain, fevers. If they enter the stomach, the person may die. (p. 143).

It is widely believed that animals dying from epidemic diseases are most dangerous and are extremely virulent and harmful to people (Professor Q.M. Chen, personal communication, February 12, 2004; Kuriyama, 2000).

Another type of disease documented in Zhubing Yuanhou Zong Lun (注病中論) is *zhubing*(注病) (Kuriyama, 2000), which translates to "influx diseases." These can spread from human to human. It was speculated that poison, parasites, wind, or spirits could worm into individuals who were incapacitated or had weak immune systems and produce zhubing (注病). The pathogens then migrated and caused damages inside the body, or they might lie dormant for years before killing the host. The concept Chao wanted to convey in his book was that when an individual died, the body emitted *zhuqi* (注氣), or harmful breath, which could be easily transferred to individuals who were around the body at the time. Therefore, whatever was responsible for the death of the individual could spread to others and cause symptoms similar to those of the deceased (Zhubing Yuanhou Zong Lun, p. 96 cited in Kuriyama, 2000).

There are two types of *shang-han*(傷寒),or cold-damage diseases, according to Chao Yuan-fang (巢元方). The first results from the impact of cold and affects only the individual. The second type occurs when the seasons slip out of order, and the warm and cold seasons seem to be out of line. In this situation, people are more prone to sickness, and the illnesses acquired from this are often contagious (Zhubing Yuanhou Zong Lun, p. 38 cited in Kuriyama, 2000).

Xiong Lipin (熊立品) a Qing Dynasty physician, warned people of *weiwu* (穢物) or unclean materials, and advised avoiding going near those suffering from epidemic diseases. This was the first time the concept of contagion appeared in Chinese records (Shi, 1957, cited in Needham, 1980). Kuriyama (2000) argued that such precautionary suggestions had a traditional origin. *Ge Hong* (葛洪) reported in the *Baopuzi* (抱朴子) that the people of Wu and Yue devised special procedures to fortify an individual's vital breath to render him or her more resistant to illnesses. This would explain why some did not succumb to certain diseases despite close contact with sick individuals. The notion of contagion is weak but present in the Chinese medical context; its importance is secondary only to that of weather, which is well described in Chao Yuan-fang's Shang-han Lun (巢元方之傷寒論). The discussion of infectious disease in Shang-han Lun (傷寒論) appeared in the discussion of *shiqibing* (時氣病), or diseases of the weather, and wen bing (溫病), or diseases of the temperature, but these diseases were discussed only in the context of other diseases (Zhubing Yuanhou Zong Lun, p. 47). Treatments for wen bing (溫病) are clearly documented in Shang-han Lun (傷寒論), and the use of herbs for their prevention is also stated clearly (Professor Q.M. Chen, personal communication, February, 12, 2004; P. C. Leung, personal communication, May 6, 2004).

The concept of contagion did not play a significant role in the understanding of the causation of diseases in China previously, as other factors played a much more important role. One must consider that in premodern China, nature and changes in the weather were often used to explain why illnesses were rampant at certain times of the year (Professor Q.M. Chen, personal communication, July 15, 2003; S. Tse, personal communication, May 8, 2004). Kuriyama (2000) argued that the role of contagion was overshadowed by the concept of cold and heat in relation to disease causation. The concept of wind as a cause of numerous diseases was extremely detailed in the *Gujin Tushu Jicheng* (古今圖書集), or the Encyclopedia of Medicine, which devoted more than 700 pages to the concept (Kuriyama, 2000). The ancient Chinese were concerned about the unseasonable changes of weather in the causation of diseases. It is generally accepted that spring should be warm, summer hot, autumn cool, and winter cold, and any extreme in temperature changes within the seasons were not well tolerated by individuals. Epidemic diseases often occurred when temperatures changed not according to seasons, for example when the winter is extremely warm or the summer is unseasonably cold. Chao, in his Shang-han Lun (傷寒論), attributed this to the disorder of yin and yang, and this was the main belief in the causation of infectious disease at the time. Therefore, one can conclude that the concept of contagion existed in China, but it was secondary to the weather in its ability to explain the cause of diseases.

Disease causation of SARS from the TCM Perspective

The Center for the Prevention and Control of Diseases under the Ministry of Health of China considered SARS as a form of wen bing ("warm disease," disease with fever and temperature) (Ministry of Health, 2003). Wen bing is a specialty within the Shang-han Lun (傷寒論) (Professor P.C. Leung, personal communication, August 14, 2003). Diseases manifested by fever were described and well documented more than

2,000 years ago in the Han Dynasty (漢朝) when Zhang Zhong-jing (張仲景) (a famous pioneer of TCM) wrote his book Shang-han Lun (傷寒論). This classic work contains a detailed documentation of typhoid but, in reality, it encompassed a large number of diseases that are probably infectious in nature (Professor P.C. Leung, personal communication, August 14, 2003). Those who came after Zhang further refined and expanded the concepts of wen bing, and it was finally established as an important branch of Chinese herbal medicine (Dr. P. Tse, personal communication, August 16, 2003).

Wen bing (溫病) often appear on the cusp of weather changes, that is between spring and summer and between autumn and winter (Professor Q.M. Chen, August 30, 2003; Professor P.C. Leung, May 8, 2004; S. Tse, May 9, 2004). These feverish diseases are thought to be contagious and will spread within the household, later spreading outside to the community and, with modern transport systems, even spreading to other countries. As discussed earlier, the role contagions played in the development of wen bings (溫病) was acknowledged, but the emphasis was limited, probably because of the stress placed on changes in the weather as the main cause of diseases at the time. This is the case with SARS with the first case traced back to November 2002 in Guangdong. SARS is categorized as disease of the temperature, which fit with the unseasonably warm weather at that time (Professor Q.M. Chen, personal communication, July 23, 2003).

Based on the categorization of SARS as a type of wen bing(溫病), the treatment would follow closely what has been laid out in the wen bing (溫病)classical teaching

Shang-han Lun (傷寒論)(Professor Q.M Chen, personal communication, September 20, 2003; S. Tse, personal communication, August 10, 2003).

SARS is categorized as a type of wen bing (溫病) - a febrile warm disease - within the classification of Traditional Chinese Medicine. The use of herbs for prevention and treatment of this class of diseases is well documented in Chinese medical textbooks (Professor Q.M. Chen, personal communication, July 24, 2003; Professor P.C. Leung, personal communication, May 18, 2004). SARS is classified as a warm disease that affected the lungs, and use of food and herbs classified as *liang* (涼), or cool in nature, are recommended to increase the body's resistance to the SARS virus (Professor P. C. Leung, personal communication, May 6, 2004; S. Tse, personal communication, May 8, 2004).

Prevention of SARS – The Traditional Chinese Way

The prevention of SARS in the Traditional Chinese way involves strategies similar to those outlined above. It is important to note that the use of a mask or barrier is not new for the Chinese. *Li Ting* (李梴), in his *Yixue Rumen* (醫學入門), or Introduction to Medicine, suggested that before entering a house plagued by an epidemic disease, one should first ingest sesame oil or pack one's nostrils and ears with strips of papers previously soaked in sesame oil, *xionghuang* (雄黃), or cinnabar (*Yixue Rumen*, 1575). According to Li, these are the most effective way to avoid getting sick from *weidu zhi qi* (穢毒之氣), or polluting and poisonous effects (*Yibu Quanshu*, 1977, cited in Kuriyama, 2000).

Zhang Jiepin (張介賓) (1563-1640) also stressed the importance of protecting one's nostrils for prevention of infectious diseases. He postulated that poisonous air enters the nose and spread to the brain, the lungs, and the rest of the body through one's *qi* (氣), or breath. There are two ways of dispelling the poisonous air. One is to sneeze and exhale forcefully and then inhale fresh air deeply; the other way is to burn aromatic incense (presumably to purify the air). The most effective method he advocated was to suck on biscuits made from Fujian tea (*Yibu Quanshu*, 1977, cited in Kuriyama, 2000). Zhang also advocated the importance of staying away from pollutants. He traced *wenyi* (瘟疫), or temperature epidemics, to impure air from one's respirations. If this impure air accumulated in the house, the entire household would get sick, and as it spread to villages and cities, more individuals would be affected, and the disease would spread still farther. Thus, Zhang suggested that another prevention method was to rid the areas of such impure air or to move far away from the source. From these examples documented in the Chinese medical literature, one could speculate that people were aware that certain illnesses could be prevented by initiating certain precautions. There was also evidence that people were aware of the role played by contagion in causing diseases. It was clear from the literature that the understanding of the role of contagion in disease causation and prevention was based entirely on observation and that there was no effort to analyze the concept systematically and in detail. Physicians were aware of the importance of taking proper precautions to prevent certain diseases and did not hesitate to use isolation as a means of controlling disease spread.

Use of Herbal Medicines to Prevent SARS

Physicians from Hong Kong and China routinely used an integrative approach to treat SARS. To date one study has reported that health care workers using a herbal supplement were less likely to contract SARS ($p=0.014$) and less likely to have minor adverse events (Lau et al. 2005). During the SARS epidemic, recipes using herbs to strengthen the respiratory system appeared regularly in all Chinese community newspapers. In addition, newspaper columns dedicated to discussing and preventing illnesses using Chinese herbal medicines ran weekly discussion forums on the use of food and herbs to prevent and treat SARS. Therefore, one can assume that Chinese elderly probably utilize herbal medicines to prevent SARS by trying to maintain their internal balance between the yin and yang energies. I will discuss this in more detail in the following section.

Treatment for SARS from the Traditional Chinese Medicine Perspective

TCM treatment for SARS consists mainly of herbal medicines categorized as having cool properties or ‘liang’ (涼) was used as adjuvant therapy with Western medicines (Professor P.C. Leung, personal communication, August 14, 2003). Positive reports coming from Guangzhou in June reported that 60 patients in one hospital who received herbal medicines were responding well, and the mortality rate was zero. A second hospital reported a mortality rate of 6% and 120 patients being treated, a mortality rate far below the rate outside of China. One important finding from this report was that health care professionals who took prophylactic herbal drinks for the prevention of SARS during the outbreak period reported no infection among them despite working in a high-risk area. (Lau et al. 2005; Leung 2004). Examination of the preventive prescriptions revealed the use of various herbs that were noted in the *Shang-han Lun* (傷寒論); thus, according to Professor P.C. Leung (personal communication, August, 14, 2003), it is worthwhile to use specific Chinese herbs to prevent and treat SARS at the early stage of infection. Leung also emphasized that more research studies need to be conducted to establish the effectiveness of Chinese herbal medicines in the fight against SARS.

Contagion from the Western Perspective: the Case of SARS

The term 'contagious' came from the Latin word *contagio*, which encompasses notions of touch and transmission; in medical contexts, it is often connected with danger, proximity, and pollution. The core meaning of contagion often refers to the disease transferability generally, and the meanings of both infection *and* contagio remain closely connected. Thus, contagion represents something that is usually feared and spreads among individuals through either direct or indirect contact.

Contagion frequently invokes fears of serious diseases and generally relates to uncontrollable outbreaks of bacteria and viruses, such as Ebola and HIV. Previous epidemics, such as cholera, smallpox, malaria, and tuberculosis, no longer induce great fear among those living in developed countries, as there are known treatments for these diseases, but they remain a threat to many developing countries except smallpox.

The outbreak of SARS changed this viewpoint completely, with its rapid rate of transmission and lack of effective treatments. Furthermore, unlike other infectious diseases, SARS affected mainly developing countries, with its rapid spread aided by international travel. SARS also sets itself apart from other epidemics and, as a result, gained recognition because it occurred at a time when modern medicine was believed to have successfully abolished epidemic diseases in the Western developed world and to have developed sufficient knowledge of the immune system for rapid identification of pathogens. This trust and belief that modern medicine can control and cure any disease created immense pressure on the governments involved to act quickly and contains SARS when the outbreak occurs. SARS also set off discussions over whether sufficient protection was available to the frontline health care workers caring for patients and families affected by SARS.

In epidemiological terms, the rapid spread of SARS was certainly related in part to the increased opportunities for air travel and the practice in China of consuming wild animals (Leung & Ooi, 2003). These are supported by the rapid spread of SARS and the fact that the genetic sequencing of the SARS virus closely resembles that of a virus found in the palm civet cat. This cat is consumed in China during the winter (CDC, 2003; WHO, 2003).

Using germ theory, Western countries identified the pathogen responsible for the disease and quickly attempted to curb its spread, as discussed in detail elsewhere. However, it is imperative to consider alternative explanations used by individuals from other cultures in relation to the causation of SARS, as this will have an impact on the prevention of the disease.

Strategies for Preventing SARS

Western strategies for preventing SARS are related to the mode of transmission of the virus causing the disease. The actual routes of disease transmission are still unknown, but it is established that SARS is probably transmitted by droplets (Seto et al., 2003). This was confirmed when a large number of health care workers (HCWs) fell sick in Hong Kong. The first SARS patient was admitted to hospital, where he deteriorated quickly, requiring mechanical support for ventilation. HCWs did not know at the time the risk of such infection and did not wear masks for protection. As a result of the rapid spread of SARS, HCWs all routinely wear N95 masks (a mask that will filter 95% of particles that are less than .3 microns, the size of the SARS virus), gloves, and gowns when caring for patients. These are standard hospital precautions to prevent the spread of any infectious diseases of unknown origin.

To contain the spread of SARS, health authorities around the world rely on many preventive strategies. I will categorize these strategies into two areas: those that pertain to individuals and those that pertain to the communities. These strategies are generally categorized under the conventional medical system. It is believed that to control SARS successfully, complementary strategies directed toward the individuals and toward the community must be utilized. I will discuss both Western and Traditional Chinese perspectives, as the basic concept of disease causation still vary as in the section on TCM has depicted earlier.

Western Preventive Strategies Against SARS

These strategies aim to protect the individual against contracting SARS from diagnosed SARS patients; the public also used them to protect themselves from contracting diseases, because people can be carriers of the SARS virus without exhibiting any cardinal symptoms of SARS. These strategies were recommended by the U.S. CDC and modified by individual health departments to suit the needs of their country. The CDC further subdivided these into strategies for individuals who had close contact with patients diagnosed with SARS and strategies for those with social contact with patients diagnosed with SARS. The definitions of *close contact* and *social contact* will be discussed, followed by a discussion of the two types of preventive strategies. The definitions of the types of contact must be clear to the individuals if they are to initiate the appropriate strategies against the disease. I will discuss these separately.

Preventive Strategies for Those with Close Contact with SARS Patients

The CDC defines *close contact* as caring for and/or living in the same household as patients diagnosed with suspected SARS (CDC, 2003d). Based on the CDC's preventive guidelines for SARS, the Departments of Health worldwide suggested the following to prevent the spread of SARS:

- Individuals living in the same household with a SARS patient should follow strict hand washing recommendations set out by the CDC.
- Individuals who are suspected to carry the SARS virus should wear a mask for 10 to 14 days to minimize the spread of droplets. If they are unable to tolerate a mask

because of respiratory difficulty, members living in the same house should wear a mask when providing care to the individuals.

- Maintenance of good personal hygiene is important. This includes covering one's mouth and nose when sneezing or coughing; properly disposing of tissues; washing hands with soap if soiled with respiratory secretions and after using the toilet; and not touching one's eyes, nose, or mouth.
- Serving spoons and serving chopsticks should be used at mealtime to serve food into individual bowls. The common Chinese practice is to take food using one's pair of chopsticks used for eating. This might facilitate the spread of the SARS to other family members through dishes of food.
- All family members, including live-in helpers (common in Chinese families), should observe the above personal hygiene practices.
- The apartment or house should be kept clean and hygienic daily by the use of diluted household bleach or 70% alcohol.
- Individuals should avoid crowded places.
- Individuals should maintain good indoor ventilation and ensure that air conditioning units are functioning properly.

Preventive Strategies for Those Who Have Social Contact with Patients with SARS

The Departments of Health worldwide (CDC, 2003d) recommended that those who maintain social contact with SARS patients should

- maintain good personal hygiene,
- wear a mask, and

- keep their apartment or house clean by cleaning with bleach or 70 % alcohol.

The above preventive strategies aim at reducing the risk of contracting SARS from a suspected SARS patient, but to date there are no preventive strategies guidelines to protect the individual from contracting SARS from the wider community. A closer look at the above recommendations, however, indicates that one could use the above strategies regardless of whether one has close or casual contacts with suspected SARS patients. These strategies do not include the use of prophylactic Western or Chinese Medicines to strengthen one's immune system. These strategies have been suggested by TCM practitioners in Hong Kong and in Edmonton (*Sing Tao*, March, 15, 2003; Q.M. Chen, personal communication, July 15, 2003).

Isolation and Quarantine within the SARS Context

Isolation and quarantine are two more strategies that are common practices in public health and aim to control public exposure to infected or potentially infected individuals. These two strategies involve the separation of individuals from others, but there are differences as well. Isolation pertains to individuals who are known to have the SARS infection; quarantine applies to those who have been exposed to SARS but who might or might not become infected. The strategy of isolation is used routinely by hospitals to care for patients diagnosed with tuberculosis and other infectious diseases. In most cases, isolation is voluntary, but all levels of government have the authority to impose the isolation of sick people to protect the public.

Quarantine, on the other hand, involves separating exposed individuals and restricting their movements with the intention of stopping the spread of disease. It is by far the most effective way to protect the public. In Hong Kong, during the SARS outbreak in *Amoy Gardens* (淘大花園) (a housing estate in Hong Kong), 300 individuals were asked to undergo voluntary quarantine (*Sing Dao*, April 3, 2003; CBC, April 3, 2003). A similar tactic was used in Toronto, where over 1,000 individuals were quarantined to prevent the spread of SARS.

As no prophylactic vaccination or specific treatment is available for SARS, prevention is the only measure that one can take to prevent its spread. To date, there is a lack of research into the different preventive strategies utilized by the Chinese to protect themselves from SARS. With the mortality rate of SARS approaching 50% for those over the age of 65 (WHO, 2003b), it is necessary to understand how Chinese elderly utilize strategies to keep themselves healthy and decrease the chance of infection.

Treatments for SARS from A Western Perspective

Although there are no definitive treatments for SARS, treatment with Western Medicine depends mainly on medications and supportive care, such as the use of ventilators when the respiratory system is greatly affected. Treatment protocols for SARS include the use of antibiotics to prevent opportunistic bacterial infection, high dose steroids to control excessive immunological responses, and antiviral preparations such as ribavirin (Wenzel & Edmond, 2003). However, steroid use has been questioned and objected to by medical professionals worldwide, as many believe that they bring more harm than benefits to the individual (Oba, 2003). Medical personnel continue to work to find medicines that can be used specifically to treat SARS, but they admit that prevention remains the most effective strategy. To date, treatments for SARS remain supportive and scientists agree that the development of a vaccine is necessary ultimately for the control of SARS.

Summary

The elderly Chinese living in Edmonton have adhered to their traditional Chinese beliefs including those about disease causation, and prevention of, and protection against, diseases. However, they have also incorporated Western belief regarding disease causation, prevention of and protection against diseases.

There is a paucity of studies investigating the Chinese elderly experiences on the use of preventive and protective strategies specifically against infectious disease such as SARS. It is therefore important to gain an in-depth understanding of how Chinese elderly prepared for and coped with SARS. The SARS crisis provided a unique opportunity to document the response of the community to the threat of a new epidemic as well as exploring how the elderly selected and utilized strategies from both Western and Traditional Chinese medicine.

It is not sufficient to simply describe the types of preventive and protective strategies the Chinese elderly utilized against SARS. One must also understand the characteristics and rationale that influence the types of strategies used against the disease. This information is essential for health care professionals to plan effective programs for the prevention and protection of SARS, and it ensures that any interventions recommended are culturally appropriate. I chose therefore to conduct the study to generate a model describing the responses of the Chinese elderly to SARS during the phases of the epidemic from the onset of the SARS crisis till its containment.

CHAPTER III

METHOD

In this chapter, I address the use of grounded theory to explore the process of how Chinese elderly in Edmonton prevent and protect themselves against SARS. I also discuss the specific ethnographic strategy that I incorporated into this study to explore the cultural components of responses to the threat of SARS. Unstructured interviews with 19 Chinese elderly made up the data set. As no systematic research has been conducted to gain an in-depth understanding into the experiences of Chinese elderly in relation to the SARS epidemic, I determined that a grounded theory approach would be best suited to this study. I have incorporated the description of the method used in this study throughout the appropriate sections of this chapter.

Grounded Theory

Grounded theory is based on the theory of symbolic interaction and aims at generating a theory that explains human behaviors within specific social contexts (Chenitz & Swanson, 1986). According to Glaser (1978), grounded theory is the systematic generation of theory from data that are obtained systematically from interviewing and observation. Researchers develop their theories through the process of interpretation and the application of creativity to the data collected. Grounded theory requires researchers to think actively, try to make sense of the data, and discover a theory that best suits and explains the data. Through active interpretation, researchers look for concepts within the data and seek to generate a theory that best represents how these concepts all fit together.

Philosophical Underpinnings of Grounded Theory

Symbolic interaction is a view of the world from a social and psychological perspective that is dependent on the interactions between the individuals and their environment. It has its roots in American pragmatism (Schwandt, 1997). Scholars such as Mead (1934), Dewey (1937), and James (1953) have contributed to the development of symbolic interactionism, but many of the assumptions underlying the theory of symbolic interaction are derived from Blumer's 1969 work. Three principles are inherent to Blumer's theory of symbolic interactionism: meaning, language, and thought. These core principles are central tenets in the development of an individual's self and socialization into society (Griffin, 1997).

Blumer (1969) ascertained meaning as the most important principle and argued that the ways in which humans act toward people and things are based on meanings they have attached to those people or things. Through the process of interacting socially with others, individuals develop a sense of self and establish their way of thinking. This process of interaction allows individuals to think logically and prepares them to be rational beings. According to Mead (1934), social interactions are important and necessary for the development of self in an individual. Thus, the meaning that individuals attach to objects comes from interacting with others, and as such, meanings are manipulated and processed through active interpretation.

The second core principle of symbolic interactionism theory is language. Language is vital, as it is the means by which people can negotiate meaning through the use of symbols. Blumer (1969) insisted that only by engaging in conversation with others do people start to identify and name objects. This allows individuals to take part in discussion. Language, therefore, is the main mode of communication between individuals by which meaning are transferred among members of the same or different groups.

The third core principle is that of thought. Thought is essential for the modification of each individual's interpretation of symbols. Thought, based on language, is a mental conversation or dialogue that requires one's imagination of different points of view in relation to a specific social event. Thus, "these meanings of such things are handled in and modified through an interpretative process used by the person in dealing with things he encounters" (Blumer, 1969, p. 2).

According to Blumer, symbolic interactionism consists of (a) human interactions, (b) interpretation of the meaning of the event rather than just reacting to it, (c) use of symbols to convey meanings, and (d) interpretation of meanings between individuals and their contexts. People do not react to stimuli; rather, they create their responses through interacting and interpreting situations. Humans are active rather than passive individuals within the interaction paradigm. Blumer (1969) argued, "Human interaction is mediated by the use of symbols, by interpretation, or by ascertaining the meanings of one another's actions" (p. 145).

To take part in social life requires that individuals interact with others on a social level and participate in group activities. For group activities to occur, however, meanings must be shared among members of the group. As Blumer (1969) stated, "Human society is to be seen as consisting of acting people, and the life of the society is to be seen as consisting of their actions..." (p. 85). Communication via language is important for members of any group to share their experiences and the meanings they attach to events. Thus, symbolic interactionism aims to discover meanings of any given situation and to understand why members of a certain society behave in a specific manner. Eventually, shared meanings among members in relation to specific events, in turn, will guide members' behaviors and decisions to act.

The symbolic interactions perspective deems people as active and holds that the world is not static but, rather, constantly in motion. Thus, the world is socially constructed and is constantly in flux. If one is to subscribe to the above view of the world, then it is impossible to have only one definition of any situation under study. Interactionists emphasize creating meanings through the process of socialization and attempt to understand a small portion of the world by describing the experiences of individuals.

The process of engaging and utilizing protective and preventive strategies against Severe Acute Respiratory Syndrome (SARS) is a social phenomenon that develops through symbolic interaction between the Chinese elderly and others in their social world. The use of various strategies against SARS by Chinese elderly could be influenced by others in the community through the process of interaction with one another. It is through such encounters that shape and influence the behavior of the Chinese elderly on the use of different strategies against SARS.

The procedures of data collection and principles of data analysis in grounded theory allowed me to understand thoroughly the process utilized by the Chinese elderly to prevent SARS and protect themselves and others against the disease. Unstructured interviewing techniques were the most important method of data collection for the grounded theory method, and I employed the techniques of data analysis as described by Glaser (1978). The findings of interviews combined to illustrate the theory of protecting oneself and others against SARS.

Ethnography

Grounded theory is the method of choice for understanding process. However, it does not address the cultural dimension of this study adequately. The cultural component is vital in this study, as the comprehension of Traditional Chinese Medicine (TCM) relies heavily on an understanding of the meaning of the Chinese terms used. TCM was conceptualized 2,000 years ago, and specific terms used to explain its principles were influenced largely by the cultural environment at the time. It is vital for me to understand the intended use of these terms at that time to interpret their meanings accurately, even though the original meanings of these terms might be different from the current ones. This is important, as terms used to describe disease causation from TCM's perspective are widely used by the Chinese in different contexts. I needed to clarify the meanings of specific terms and appreciate why such terms were used at the time. Language played a vital part in this study, and so I deemed ethnographic strategies useful. In particular, I used these strategies when interviewing the TCM practitioners to enhance and clarify the cultural components that emerged from the study, which would help me to comprehend

TCM further. This clarification provided rationale for certain strategies against SARS in which the Chinese elderly engaged. Finally, ethnographic strategies were appropriate because of the cultural implications, as the Chinese elderly community could be considered a distinct subculture whose members shared a specific language and behaviors.

Specific Ethnographic Strategies

I used three specific strategies to clarify and enhance the understanding of the cultural context of my study. These strategies consisted of asking questions that were specific to ethnography to probe the cultural component of the study, especially with respect to Traditional Chinese Medicine. The three strategies used were as follows.

Sensitizing Strategies

These are ethnographic approaches that help the researcher to identify ideas that would not otherwise be identified if he or she employed only the grounded theory approach.

These sensitizing strategies consisted of using specific ethnographic question. According to Agar, "ethnographic question-asking is a special blend of art and science" (1980, p. 45). Interviewing has been recognized universally as a way of obtaining information, but the researcher must be aware of the types of questions to pose to the participants to probe certain topics. For this research, sensitizing strategies consist of my asking descriptive questions (Spradley, 1979) of the TCM practitioners, in particular to obtain a sample of the languages used to describe the principle of TCM and to categorize SARS. Descriptive questions posed to the TCM practitioners included "Could you tell me why these specific terms were used in TCM?" "Could you clarify for me why you used these specific terms to describe SARS?" and "Could you tell me the differences between the terms that were used at that time and how they were used now?" (These referred to terms that were used in TCM but also had a different modern usage.) These questions allowed the participants to express their views on the use of language in relation to TCM and SARS; this informed the study findings further and facilitated linkages of categories within the emerging theory.

I was careful not to use data obtained from these questions independently, as they were not rich enough to stand on their own. The purpose of these data was only to verify data from the whole study, making the emerging theory more comprehensive and complete.

I kept a list of the terms the Chinese elderly used when they describe their experience of SARS and integrated them into the emerging theory. Therefore, these data were used to enrich and enhance the existing data, thus making the cultural component of the study more evident to the readers. These questions also heightened my cultural perceptions and directed me to pay attention to certain cultural aspects of the study that would otherwise be missed if the questions were not used.

External Strategies

Structural questions from ethnography were directed to the participants and allowed me to discover information about cultural realms, which were essential components of the participants' cultural knowledge (Spradley, 1979). These questions permitted me to get a glimpse of how the Chinese elderly in this study organized and perceived their threats in relation to SARS. Examples of structural questions included

"What type of protective strategies against SARS have you used so far and were they helpful?" and "Could you think of other strategies that can use to protect yourself against SARS and why would you use these strategies?" It is through these questions that I create an opportunity to think about their past experience and culture, and from that I extract or try to understand whether their cultural background influence the use of such strategies. From these questions, I developed a list of protective strategies of varying effectiveness and gained a better appreciation of why some strategies were more useful and valuable to the Chinese elderly. I then incorporated the analyses of these questions into the main study, which further expanded and enhanced the comprehension of the emerging theory. With the augmentation of data from these questions, the theory developed was rendered more comprehensive and complete.

External Lens Using Existing Data

In this case, part of the initial data set was interpreted using the ethnographic perspective (Morse, 2001a; Morse, 2005). I looked at the same data and sought an alternate explanation of what was happening. In this way, I used the ethnographic strategy to confirm and verify the findings in the main data set. I explored the language used in the interviews for cultural terms that signified specific cultural concepts related to the belief systems, such as the hot and cold theory in relation to maintaining one's health, religious beliefs, fatalism, and so forth. These indices required analysis of data from an ethnographic perspective to expose the richness of the cultural aspects of the study. It was crucial for me to look at the data from a different perspective and acquire a different interpretation, thus adding onto the existing findings. These new interpretations would be incorporated into the main grounded theory study explaining the cultural aspect of the study.

I was convinced that the use of the three selected ethnographic strategies would help to inform the cultural component of this study. I was careful about the role these data played with respect to the main study and was clear that they were to supplement the findings of the main study and further enhance and expand the final developed theory.

Sample and Setting

Data were collected from Chinese elders residing in one of the following settings: an assisted living environment (a nursing home for elderly Chinese), an independent living environment (an apartment for Chinese elderly), and with other family members. I recruited participants who were willing to take part in the study but were also articulate enough to express their viewpoints about SARS. The ability to express one's viewpoints is essential to ensure that rich data are collected and is vital to any qualitative study.

Residence

The administrative manager of a nursing home for elderly Chinese, an apartment for Chinese elderly, a center for multicultural services in Edmonton, and the team leader of the elders' prayer group of a Chinese Baptist Church all gave their support to the study, and gave me permission to access their institutions for recruitment and interview purposes.

I chose these settings deliberately, as I envisioned that the different living arrangements might produce distinct processes for protecting against SARS. The nursing home for Chinese elderly is an assisted living arrangement with a Western-trained physician scheduled to visit once a week. In addition, workers remind the residents to take their medications and to perform basic treatments, such as simple dressing changes. Each room has a private bathroom, which the housekeeping staff cleans daily. All meals are provided at the nursing home following a 4-week rotating menu, and only Chinese food is served. Homemade soups are served with lunch and dinner, and the residents have a choice of either rice or *congee* (thickened rice) at each meal.

On the other hand, those who live alone or with other family members need to do their own cleaning and cook for themselves and the family as well. Therefore, their protective strategies against SARS might be more intense and, perhaps, different from those who live in the nursing home. It was important, then, for me to interview Chinese elderly who live in each of the three different settings to ascertain whether there was a difference in the use of strategies against SARS.

Sampling Strategies

There were specific criteria for selecting participants in this study, as I aimed to achieve a diverse representation of Chinese elderly. Inclusion criteria were (a) Chinese elderly over the age of 65, (b) able to speak either Cantonese or English, and (c) articulate and able to share thoughts and experiences freely with me. Only Chinese elderly who spoke Cantonese or English were invited to take part in the study, as I am fluent in both languages. This was a deliberate decision, as the sample must be adequate and appropriate. The sample size must be adequate to be certain that all categories were saturated, and only Chinese elders who were articulate and willing to participate were invited to take part in the study. The quality of the research depends largely on the quality of the data obtained from the elderly (Morse, 2001).

Purposeful sampling was employed (Glaser, 1978), wherein the Chinese elderly were selected based on their knowledge of SARS. It was imperative that I identify the best participants for the study prior to the interviewing procedure. I sought help from the manager of the nursing home for Chinese elderly to identify the most appropriate participants, as she knew the clients well. To recruit Chinese elderly living on their own or with other family members, I contacted the team leader of the elders' prayer group of a Chinese Baptist Church, the manager of the apartment for Chinese elderly, and the manager of a centre for multicultural services in Edmonton. I phoned, then went to see these individuals individually to explain my study, and I received verbal support from all of them. Later, I set up meetings with the Chinese elderly at the various institutions to explain the purpose of the study and to invite them to participate in the study. The Chinese elderly were given a telephone number where they could contact me in the event that they wished to take part in the study.

Theoretical sampling is unique to the grounded theory method. It requires the researcher to collect, code, and analyze the data simultaneously to come up with a theory. Theoretical sampling is a process of recruiting participants and is entirely dependent on and driven by the emerging theory (Glaser, 1978). As categories emerge, the researcher targets specific groups for data collection to refine further and to saturate the categories. In this study, the participants described the use of isolation as a protective strategy, and it became clear that isolation was the most commonly used strategy against SARS, but these participants had not personally used this strategy. To amend this, I sought Chinese elderly who were in Hong Kong during the SARS epidemic to discuss their experience with isolation on their return to Edmonton. Schreiber (2001) has argued that good grounded theory studies should involve more than one source of information to provide a wide range of viewpoints on a topic. For this study, I supplemented my interview data by using both English and numerous Chinese newspapers to follow the SARS epidemic. The newspapers included the *Edmonton Journal*, the *Globe and Mail* and Chinese newspapers published in Edmonton and in Hong Kong. These newspapers provided different perceptions on the reactions of the public to SARS. It was necessary to include the Chinese newspapers, as they were a main source of information for the Chinese elderly in Edmonton.

Conducting research in the Chinese community would require support from the stakeholders, and this support helped in my recruitment process for the study. In total, 19 Chinese elders were interviewed.

Participants

Nineteen elderly Chinese participated in this study, 13 women and 6 men. Of these, 8 (42.1%) lived with their children, 2 (10.5%) were residents of the nursing home, 7 (36.9%) lived with their spouse, and 2 (10.5%) lived alone. Four participants who lived with their spouse returned from Hong Kong during the SARS crisis and were isolated on their return. More than half of the participants were recruited through the elders' prayer group at a Chinese Baptist Church, 40% were recruited from the seniors' English class held in a center for multicultural services, and the rest were referred by other participants (snowball sampling). *All participants were fairly westernized and spoke a bit of English.* The participants' ages ranged from 65 to 90 years, and all were in good health except for two participants living in the nursing home.

Interviews were also conducted with four TCM practitioners regarding the disease causation of SARS from the TCM perspective. In addition, I interviewed two Hong Kong academics who are experts in TCM to obtain information on and understandings underlying TCM treatments for SARS in Hong Kong.

Data Collection

Grounded theory studies stipulate specific analytic strategies, but the methods for data collection have been widely debated (Charmaz, 2000). Following Glaser (1978), Schreiber (2002) considered "everything is data" and that the role such data play in the analysis of the study would be entirely up to the researcher. The type of data best suited to grounded theory studies has been a point of disagreement among grounded theorists (Morse, 2001b). Initial grounded theory studies were conducted using data from both observations and interviews in the research setting (Glaser, 1978); however, Glaser has argued that data should be experiential, based on one's experience and observation. Benoliel (1996) observed a trend for grounded theorists to utilize data exclusively from unstructured interviews that were conducted in natural settings. It had been argued earlier by Schreiber (2002), on the other hand, that a researcher could use other sources for data besides the traditional interviewing method to build up his or her data bank, as the larger the data set would help in the process of data saturation.

Morse (2001c) has maintained that the best types of data for such a purpose are obtained from unstructured, retrospective interviews. Such interviews are necessary, as they provide continuous narrative data, which facilitates identification of processes in grounded theory studies (Morse, 2001c). Retrospective interviews were the most appropriate to use in my study, as participants coming back from Hong Kong would have time to reflect on their experiences with SARS, given that the interviews were conducted 5 months after the occurrence of the SARS epidemic. This time lapse was necessary, especially for participants who came back from SARS infected countries, as many were tired and were undergoing isolation. Many were relieved to be back in Edmonton, and interviewing a couple of months after the SARS outbreak was necessary to give them time to consolidate their experience. Also, their description of their experiences and understanding of SARS would be more accurate. Unstructured retrospective interviews, observation, and newspaper clippings were the main methods of data collection in my study.

Procedures for Data Collection

I met with the managers of the three institutions individually to explain my study, to seek their support, and to answer any concerns and questions. Later, I visited the Chinese elderly in each of the institutions separately and I introduced the purposes of my study to them, and they all seemed interested. I obtained telephone numbers of the Chinese elderly who indicated their interest in taking part in the study and asked for permission to contact them at a later date. Those Chinese elderly who were not certain at the time of the information session were given my telephone number, so that they could contact me if they wished to be included in the study.

In addition, the Chinese version of the advertisement for participants was posted at a Chinese Baptist Church, and participants were also recruited by word of mouth. The manager of the nursing home for elderly Chinese and the English teacher at a centre for multicultural services in Edmonton both agreed to help in identifying potential participants who were willing to take part in the study. These managers contacted the potential participants and asked permission for me to call them to discuss the study with them in more detail. In addition, the manager of a centre for multicultural services helped during data collection by allowing me to use the classroom for interviews. In this way, the Chinese elderly who attended the English class could stay behind for the interview, saving them from having to make a special trip to the centre for the interview. Convenience is important, but I am also aware of the importance of having a quiet place to conduct an interview. For that reason, I went to the centre and discussed specifically with the manger regarding the possibility of using one of the classrooms to interview the participants, and she gave her approval. Therefore, I was guaranteed a place to conduct my interviews at a centre.

I explained the study and obtained consent from all participants prior to the beginning of the interview. I reviewed the information letter with the participants before interviewing the participants and reminded them that participation was entirely voluntary and that they could end the interview process at any time or refuse to answer any questions. This is especially important, as the participants are elderly, who are considered a vulnerable population. According to Kayser-Jones and Koenig (1994), coercion and exploitation of a vulnerable population such as the elderly are of special concerns, as "if people are lonely, do they consent to be interviewed because of the social interaction it provides them?" (p. 250). Thus, the voluntary nature of consent might be at stake because of the senior's desire for human contact as a result of social isolation or because of coercion. The desire for human contact of the participants was not a concern in this study, as all the participants had an active social life. All took part in some types of activities, and all had regular social contact with others besides their family members.

On the other hand, the problem of voluntary participation must be addressed, especially in the Chinese elderly population, as in my experience, Chinese participants seldom refuse to take part, as they do not want to offend the "professional." The voluntary nature of the consent might also be threatened by the Chinese elder's sense of obligation to participate. Chinese society is a collective one, and each individual is expected to sacrifice his or her interests for the greater good of the society, a core concept in filial piety. The devastating effect of SARS on the frontline health care workers further encouraged participation by the Chinese elderly, as many were saddened by the deaths of some dedicated health care workers. In view of these, I took extra effort to explain to the Chinese elderly that participation was entirely voluntary and that they could stop the interview at any time during the interview process or refuse to answer any of the questions.

To avoid the possibility of coercion, furthermore, I employed 'process consent' in additional to the verbal informed consent in this study in view of the participants.

Munhall (1989) described traditional informed consent as a rigid and "past tense" concept, which does not adequately protect human participants in qualitative research (p. 161). She advocated the use of process consent, as such consent "encourages mutual participation, and perhaps mutual affirmation for both participants and the researcher" (p. 249). Kayser-Jones and Koenig (1994) also support the use of process consent for the elderly population in particular, whereby the researcher must "engage in an almost daily process of obtaining consent," constantly reexplaining the purpose and the requirements of the study (p. 20). In view of the increased possibility of coercion in this group of participants, I utilized process consent and explained the purpose of the study when I first met with the different groups of Chinese elders. When the elder agreed to take part in the study, I again assessed his or her understanding of the study and reiterated that participation was entirely voluntary. Finally, I obtained verbal consent prior to the start of the interview. I took precautions to ensure that the participants had adequate opportunities to ask questions and that they were willing to be interviewed without pressure from others.

Each of the 19 participants was interviewed separately at a time and place stipulated by him or her. All interviews were unstructured and conducted in Cantonese. I interviewed married participants separately, as I did not want one participant to influence the other during the interview process. The interviews were conducted retrospectively, as in this way, the Chinese elder would be able to relate his or her experience in a linear form (Morse, 2002). This form of interviewing was especially appropriate to my grounded theory study, as it allowed the participants to delineate their process of experience from the onset of the SARS epidemic until it was under control.

After obtaining verbal consent, I obtained demographic data from each participant. The demographic sheet included age, sex, marital status, a brief medical history, current medications, religious beliefs, travel to Hong Kong or other SARS-infected countries during the epidemic, and mode of residence. I envisioned that demographic data would be useful in the development of the theory about protection against SARS, as individuals traveling to SARS-infected countries might use extra precautionary methods. I made no attempt to correlate the demographic variables into the developing theory unless such data demanded to be addressed and earned their way into the emerging theory (Glaser, 1978).

At the beginning of the interview, I approached the topic of investigation broadly. I asked the participants general questions such as "Tell me what happened when you first heard of SARS." All participants started to relate their experiences with SARS, and subsequent questions focused on asking the participants to elaborate on and clarify their experiences in the area of taking protection against SARS. Thus, I changed the interview questions over the course of the interview, moving from the general to the specific.

The average time for the interview was about 1 hour. In addition to the taped interviews, as soon as possible afterward, I wrote memos describing my impression of the interview and any ideas that arose from the interviews to prevent the loss of important details. In addition to the elderly participants, I also interviewed four traditional Chinese doctors (three from Edmonton and one from Hong Kong) to obtain their understanding of

SARS and protection from the disease from the perspective of TCM. This was necessary, as the protective strategies against any disease are related to the etiology of that specific disease.

Considerations when Interviewing the Elderly Chinese Participants

When conducting interviews with the elderly, it is important to make sure that the setting and the participants are comfortable. Attention to the physical setting is necessary to ensure the success of the interviewing procedure. Adequate lighting must be provided for the signing of consent forms, as reduced visual acuity and failing eyesight are common complaints of the elderly. Although all participants chose to have verbal rather than written consents, the lighting in the room needed to be good, as all the elderly in this study wanted to see me clearly. As the elder's hearing might also be compromised, I spoke slowly and clearly. I also avoided raising my voice, as it is considered impolite, and the Chinese elder would be offended.

If the elder wears a hearing aid, it is necessary that it be worn, turned on, and functioning properly during any interview. VanCott (1993) reported a 50% incidence of communication breakdown with the elderly due to background noise coupled with hearing deficit. To overcome this potential problem, I asked participants when they first arrived for the interview if they wore any hearing devices. None of the participants used a hearing aid, but I was asked to speak louder, as the sense of hearing had deteriorated with age.

Other comfort measures included observing the participants for signs of fatigue and my reminding the Chinese elders that they could take breaks during the interview. I was prepared to terminate the interview if necessary. None of the participants required full dentures, but I did check with the participants, as loose dentures might affect their speech. They seemed to understand and did not mind the question. I offered the participants tea or warm water prior to the interview, as it is considered polite in Chinese society to offer people a drink when meeting with them. As many of the interviews were conducted at a center for multicultural services, and tea is available during the time the center is open, I would offer the participant tea prior to the interview. Participants who chose to be interviewed at their house offered me tea out of courtesy when I arrived.

To convey respect to the Chinese elderly participants, I addressed them only by their surname and using the prefix *kung kung* (公公) or *po po* (婆婆). The common practice is that if an individual is over age 65, a younger individual would use the former for men and the latter for women.

I scheduled only two interviews each day, one for the morning and one for the afternoon, to give the elderly participants sufficient time to relate their stories and to reminisce about their experience.

Data Analysis

The grounded theory method requires the researcher to collect and analyze the data simultaneously. Glaser (1978) and Strauss (1987) both argued that the process of doing grounded theory is both systematic and intense because of the simultaneous and collection and analysis of data.

Data analysis proceeded in the following way. First, I transcribed the interviews in Chinese and reviewed them to check for accuracy of the transcripts. I then translated all the transcripts into English to facilitate discussion with my supervisor and committee members and to guarantee accuracy of data analysis without loss of cultural meanings of the study. To preserve the semantic meanings of the text, specific terms used by the participants to describe their culture remained in Chinese, and I have provided the closest possible English definitions and translations. The key to generating a parsimonious theory was the use of the constant comparison method to analyze the transcripts.

The Constant Comparison Method

There are four steps to the constant comparative method: comparing incidents applicable to each category, integrating categories and their properties, delimiting the theory, and writing the theory (Glaser, 1978). At first glance, data analysis for all qualitative research proceeded at a descriptive level, but at a level of inference, the grounded theory approach to analysis would be more appropriate.

This approach required me to think in terms of model development. I worked within the pattern generated in the transcripts to discover a core variable, which is known as a basic social process (BSP). A BSP is one of the essential characteristics of a high quality grounded theory, and the researcher establishes it through constant referral back to the data together with rigorous analytical thinking (Hutchinson & Wilson, 2001). The BSP reflects the main theme of the study and explains accurately "what is going on in the data" (Glaser, 1978, p. 4).

The BSP is a particular type of core variable (Glaser, 1978). All grounded theories have core variables; however, not all have a BSP. According to Glaser, the characteristic that sets a BSP apart from other core variables is that the former has more than one state of being; according to Schreiber (2002), it is "processural" in nature (p. 75), describing a process over time.

Once the BSP was identified, I could generate a theory around it by coding data around the BSP. Thus, the BSP summarized the essence of the behavior seen in the data and encapsulated what was happening with the participants. Glaser (1978) described the BSP as having "grab" and possessed of significant explanatory capability. Because of that property, the researcher does not find any data that do not fit into the BSP. The BSP should be "grounded" in the data, that is, it should be derived from the data, which suggests no preconceived ideas from other known concepts.

Substantive Coding

Substantive codes are generated by initially "fracturing" the data (Glaser, 1978, p. 55). There are two types of substantive coding, open and selective, which aim at breaking down data into pieces so that later they can be reassembled and fit into the developing conceptual framework.

Open coding

Collected data are initially coded using the open coding procedures, which assign in vivo codes to the data. In vivo codes often contain the exact words of participants. This serves to discourage the researcher from using any preconceived ideas he or she has about the study (Hutchinson, 1986; Hutchinson & Wilson, 2001). The in vivo codes are often "catchy" and "meaningful" (Hutchinson & Wilson, 2001, p. 225). This is the first level of coding, which represents the participants' view, and is the most valid type of coding. I read the transcript carefully, line by line, and looked for key words, incidents, and expressions used by the participants to describe their experience. In this way, I identified and eliminated statements that bore no relevance to the study. The code assigned to each sentence or incident was highlighted and written in the right hand margin of the transcripts and later entered into the computer. Each code included a numerical code assigned to each participant, the interview number, and the line of the transcript from which it originated. I looked for gerunds that represented attitudes, perceptions, and processes within the participants' experiences. This level of coding was mainly descriptive, and I generated as many codes as possible to ensure "full theoretical coverage" (Hutchinson & Wilson, 2001, p. 225). As a consequence, statements or series of statements might be assigned more than one code, as many processes might be at work within a given statement. This process assisted me with the constant comparison within the same data set and facilitated the discovery of patterns and conceptual properties described by Glaser (1978).

Selective coding

During the next phase of data analysis, I elevated the first-level in vivo codes to more abstract levels by condensing them and sorting them into categories. According to Glaser (1978), categories are abstractions of a phenomenon observed in the data, and each category identified will consist of several first-level codes. I asked the data the following questions: "What category does this incident indicate?" and "What category, or property of a category, of what part of the emerging theory does this incident indicate?" (Glaser, 1978, p. 57). I continued the coding process by comparing incident to incident, incident to concept, and concept to concept within the same transcript and across transcripts. At this level of coding, I generated categories from the data and described how the categories related to each other. However, this is not sufficient to create a parsimonious theory, in which abstraction of ideas is vital.

Theoretical coding

The goal in good grounded theory studies is to produce theories that link concepts. These theories have the power to explain relationships and ultimately allow others to make predictions on how individuals would act in similar situations. Such theories are produced when the researcher moves away from the descriptive data and elevates them to a higher level of abstraction. Theoretical coding, as described by Glaser (1978), aims to move the data analysis to a higher level of abstraction and provides concepts that facilitate further comparison within cases and in the development of theory. In this study, I compared the developed categories within and across transcripts to explain possible relationships among them. Through this careful consideration of the data, the theory finally developed.

Analyzing Unstructured Interviews

I used Microsoft Word® to perform analysis of all the transcripts. This method is an adaptation of a method described by Morse (1991b). I will now describe the procedure.

First, I translated the tape-recorded interviews into English and entered the transcript into the computer using Microsoft Word. Each interview was labeled with the interview number, participant number, date, and venue of the interview. I also included a description of the participant. To facilitate first-level coding, I read the entire transcript line by line. I highlighted significant passages using italics to keep the selected passages apart from the main text. These selected passages were later copied and pasted into another document and labeled as first-level codes. First-level codes that had similar meanings were then combined under broad categories and saved in another Word document.

I created a new file for each category, and each file was identified properly. I continued to delineate each passage from the interview and copied it onto a separate page, leaving a few blank lines between quotations. Twelve files on-screen could be open at one time, and I viewed a maximum of 4 to 6 files at a time to compare data. This helped with the process of analysis.

I opened each interview file in turn and selected the portion of text that belonged to a particular category. I then copied the portion, closed the Word file, opened the appropriate category file, and pasted the passage into it. Quotations from the interview file were labeled properly with the interview number and page of the interview from which the text was copied. Inserting a page break at the end of each piece of text, so that it would be printed on separate page, I then saved and closed the category window. Following that, I returned to the interview file and continued with the analysis process. Every time, before I commenced the sorting process, I reviewed the content of the category file to ensure that the quotations were, indeed, related and fit with the existing category. This enhanced the reliability and validity of the analytical process further, as I was able to review existing categories before I started the sorting process.

I also reflected on the interviews by keeping a diary. I noted my feelings and thoughts concerning each interviews and my thoughts about each respondent. These notes added context to the data and helped me to understand the experiences of each of the participants. They also served as reminders of which participants were very articulate and would be willing to be interviewed again if the need arose.

Reliability and Validity

The major responsibility of the qualitative researcher is to represent accurately the experiences of the participants so that the phenomenon under study is presented as experienced by the participants (Sandelowski, 1986). The fundamental assumption is that the participants live in a world that is best described by them and that the researcher's role is to abstract the data accurately and to present it as clearly and truthfully to the participants' experiences as possible. I used the general approach described by Sandelowski (1986) and Morse and Field (1995), and the sampling approach delineated by Morse (1991a) to ensure reliability and validity in this study.

In the sampling section, I have discussed the rationale and importance of selecting an appropriate sample for this study. Purposive sampling (Morse, 1991a) and theoretical sampling (Glaser, 1978) were used and were consistent with the purpose of this study. Therefore, I contacted the managers of the various institutions to help in identifying the appropriate participants for the study. As a result, a group of participants with diversified experiences with SARS were identified and interviewed. These individuals were eager to participate and were able to describe to express their viewpoints in relation to SARS clearly.

I also identified participants who had different experiences of SARS based on their location of residence during the epidemic. Thus, Chinese elderly who might have different experiences with SARS were sought and invited to take part in the study. For instance, I found that many of the participants did not have firsthand experience with SARS, as there were no cases here in Edmonton. Therefore, I thought that it would be important to interview Chinese elderly who were in Hong Kong or in one of the SARS-infected areas, as their experience might be different from those who were in Edmonton during the SARS epidemics. The use of theoretical sampling helped me to gain a deeper understanding of the participants' experiences in regard to SARS.

Morse and Field (1995) have argued that it is important to follow up on negative cases as they arise within a study. Negative cases are "those episodes that clearly refute an emerging theory or proposition" (p. 139). These cases are important, as they help to broaden and clarify additional dimensions that influence the phenomenon under investigation (Denzin, 1978). I identified a negative case wherein one participant stated that she was not afraid to die of SARS, whereas the majority of the participants stated that it was human nature that no one would like to die. I followed this lead and recruited participants who could shed additional light on this dimension, thus making the phenomenon much richer.

General Issues of Reliability and Validity

In qualitative research, truth-value is subject to the individual's interpretation, and it is therefore impossible for the researcher to determine it in advance. To demonstrate the truth-value in this study, I show that I had represented adequately the multiple constructions of reality in the study. Therefore, the constructions of reality derived from research must be reliable to others. The researcher's task is to interpret and report as accurately as possible the perspectives of the participants. Truth-value, or credibility of qualitative studies, concerns the ability of researchers to discover and "fit" the perspective of the participants (Field & Morse, 1995; Glaser, 1978; Lincoln & Guba, 1985; Sandelowski, 1986). Therefore, the results of this study must reflect the point of view of the Chinese elderly, and I utilized the following strategies to ensure that I had represented the participants' experiences with SARS accurately.

The strategies used were proposed by Field and Morse (1995), Glaser (1978), Lincoln and Guba (1985), Sandelowski (1986), and Hutchinson (1986). I used these strategies to ensure that I had preserved and represented the experiences of the Chinese elderly with SARS accurately.

I felt that it is extremely important to establish good rapport with the Chinese elderly prior to asking them to take part in the study, as they would be more open with me. I knew that it was important to obtain as much information as possible without coercion. This could be achieved only if the participants trusted me. I conducted all the interviews and attended meetings with the Chinese elderly prior to interviewing them. These steps helped me to obtain accurate information from the Chinese elderly, as they felt comfortable with me.

I shared the findings with a group of Chinese elders who participated in the study to clarify and to confirm my interpretation of meanings of the findings. I also discussed them with my supervisor, members of my supervisory committee, other researchers, and students at the International Institute for Qualitative Methodology. In addition, I met and discussed the findings with my fellow Chinese nurses at the Royal Alexandra Hospital to ensure that my interpretations were accurate. These meetings were extremely useful, as I could make sure that all perspectives were being addressed. I also constantly compared data and categories, checked for fit in the emerging theory, and asked some of the Chinese elders to verify the theory. I also asked them if they had any other information to add to the proposed theory.

An issue of concern to qualitative researchers is whether the findings of one study can be transferred and applied to other contexts or to other groups. Such transferability will depend on the degree of similarity between contexts in which the conclusion is drawn and the contexts to which the results will be applied. I have provided a thick description so that others can decide whether these findings might be applicable to other settings.

For this study, Chinese elderly were invited to take part in this study initially based on their ability and their willingness to share their experiences with SARS. Later, sampling was guided by the findings of the study, and because of this unique sampling method, overall results of the study might be viewed as representing both typical and atypical aspects of Chinese elders' experiences. In this case, the question "Can a theory generated in a specific context be generalized to a larger group?" (Hutchinson, 1986, p. 116) will be best addressed to the theory being developed. Perhaps the ability to generalize will be increased by researchers systematically comparing different groups, but this requires much work. However, the development of a 'quality' theory will result in the discovery of a BSP that is pertinent to other individuals (Hutchinson, 1986). This is especially applicable to this study, as SARS was spread to 32 countries worldwide.

Whether the theory can be generalized to other settings or populations would be determined by the quality of the developed substantive theory. Grounded theory and other qualitative studies are often thought of as a foundation for other research, but Morse (1989) has asserted that any qualitative study can stand on its own and is considered complete. Therefore, the quality of the developed theory is important and plays a vital role in deciding whether it can be applied to other groups.

Thus, one of the most important steps in maintaining reliability and validity in qualitative inquiry is the selection of an adequate and appropriate sample (Morse, 1991a). The reliability and validity of grounded theory is inherent in both data collection and the method of data analysis. For this reason, qualitatively derived theories resemble realities that are tested and verified during the process of theory construction (Morse & Field, 1995). The verification of theory is built into the method of data collection. I was able to clarify and verify the data during subsequent interviews. Also, the use of grounded theory method, which asks for simultaneous collection and analysis of data, ensured the reliability of the data, as it is a "self-correcting and self-verifying process" (Meadows & Morse, 2001; J. M. Morse, personal communication, May 25, 2000).

Strategies to Increase Reliability and Validity

The key to obtaining reliable and valid data is high-quality interviews. I utilized the proper methods to recruit my sample, as discussed previously. I also ensured that I was working inductively and not forcing data into a predetermined framework. I made an effort not to ask questions that would 'lead' the Chinese elderly into giving certain responses. It is important to maintain neutrality or objectivity in the manner in which the questions are framed (Guba & Lincoln, 1985).

I checked all interviews for 'gaps' to identify any areas that were omitted. The interviews were also checked for accuracy by another person who is fluent in both English and Cantonese. As I was the only person who did all the translation of the transcripts, I conferred with colleagues who were fluent in both languages when I encountered difficulties. In many cases, I have transliterated phonetically the actual words used by the participants in the text and have provided an English translation in brackets to inform English-speaking readers. The Chinese terms were also transcribed in the transcripts as they arose. In other words, I have placed a great deal of emphasis on keeping the data in its original form. The analysis was carried out in Chinese, as some terms were impossible to translate into English without loss of meaning. When these occasions arose, I conferred with colleagues who are fluent in the two languages to make sure that the meanings were reflected in the analysis and the transcripts. This helped to preserve the original meanings of the participants' responses more accurately.

Ethical Considerations

The research was conducted with full consideration for the rights of human subjects. I obtained ethical clearance from both the University of Alberta and the appropriate agencies prior to collecting any data.

I explained the study to the participants and used process consent to ensure that the participants were all aware of the purposes of the study and that participation was voluntary. I obtained verbal consents from all participants prior to the interviewing. I assured the participants of confidentiality and that their names would not be used in published articles. I have applied strict observance to the use of pseudonyms and have removed identifying information that could be linked to any participant in the study. Interviews were conducted in private places, even though some of the participants stated that they did not mind being interviewed in public places. I explained the use of a quiet and private environment to conduct the interviews, and all participants conformed to the suggestion. I monitored signs of fatigue during the interview sessions; none of the participants displayed any signs and symptoms of feeling tired. I reminded the participants once again during the interview of their right to stop at any time, but no such incidents occurred during data collection.

The tapes were kept in a locked drawer, and all identifying information was removed from them during the translation process. All transcripts were coded, and the consent tape was stored separately from the rest of the tapes and placed in a locked drawer. The tapes will be kept for a minimum of 5 years, as per University of Alberta regulations.

At the outset, I informed all the participants that there were no direct benefits to those who agreed to take part in the study. The intended benefits of the study will be in the development of the process of how the Chinese elderly used strategies to protect themselves against SARS, and this might be used eventually to help health care professionals provide better care to this group of individuals. Summaries of the research study were sent to all participating agencies on their request.

As I intend to establish a program of research in gerontology, at the time of data collection, I obtained consent to use the data for future research. This request was directed to the individual Chinese elderly, and all gave permission for data to be used for later studies if need arose.

CHAPTER IV

RESULTS

In this chapter I will report on the process of utilizing protective and preventive strategies among Chinese elderly in Edmonton and present my interpretation of the data collected. I describe the responses of Chinese elders in Edmonton to SARS at the onset of, during, and after the epidemic. Patterns of behavior relating to SARS experiences were identified based on the living arrangements of the Chinese elderly. The process of the study was derived from data and not from a preconceived theoretical framework.

In this study, the core category of Protecting Self, Family, and Others emerged from interviews with 19 Chinese elderly participants. The experience was theorized as a process of Protecting and yielded a five-stage theory describing the process of how the participants reacted to the outbreak of SARS and their responses to the fear of contracting SARS. The context plays an enormous role in the understanding of the study findings; therefore, I will first describe the setting, Chinatown in Edmonton.

Setting

Edmonton Chinatown is located between 97th and 101st Streets, and 104th and 107th Avenues, an area of about four square city blocks. It is located close to the downtown core, and 97th Street is the main thoroughfare. The Chinatown is self-contained, complete with Chinese grocery stores, fast food outlets, restaurants, Chinese herbal stores, doctors' offices, pharmacies, churches, Chinese associations, and bakeries. The apartment for Chinese elderly and the nursing home for elderly Chinese are also located there. Chinatown is usually fairly quiet during weekdays, with mostly Chinese elderly frequenting the shops and restaurants. Many of them live nearby and walk daily to Chinatown for exercise or to meet with friends for lunch. On the weekends, however, the area is transformed, as families come to have *dim sum* (點心), or Chinese brunch, at the restaurants. Weekends are also the time when people do their grocery shopping for specific items that are available only at grocery stores in Chinatown. Chinatown is frequented primarily by Chinese, other Asians, and individuals from other countries. Finding a parking place is difficult on the weekends, and especially in the summer, there are many who take buses that go through Chinatown, including Chinese elderly who live outside of Chinatown.

Although there were no cases of SARS documented in Edmonton during the SARS epidemic, the number of people visiting Chinatown decreased significantly Many Chinese did not go to Chinatown from fear of contagion, and businesses suffered greatly as a result. At the same time, however, SARS also created opportunities for some businesses, especially the Chinese herbal stores. When news spread that some Chinese herbs might play a role in preventing SARS, herbal stores in Chinatown quickly stocked up on the recommended herbs, prepackaged them, and made available for sale. Information and indications for use of these herbs were printed in both Chinese and English on the packages, together with their dosages and instructions on how to prepare them. One Chinese herbal pharmacy on 97th Street offered to prepare the tonic for a small fee, as many clients might not have the time or skills to prepare it properly. Preparation of Chinese herbal medicines is time consuming, as they need to be simmered for a long period using special utensils. One has to pay close attention during the process of preparation, or the medicines will be spoiled by overheating. Therefore, the preparation procedure of Chinese herbs is crucial, and instruction sheets for their preparation were distributed to the public by the Hong Kong Polytechnic University Integrative Health Department.

In addition to the special herbs that were advertised heavily in the community newspapers and radio, advertisements for Chinese drugs were also found outside many of the stores. Notices from Capital Health (the health authority responsible for the Edmonton area) printed in both Chinese and English warning individuals returning from SARS-infected areas to watch out for certain symptoms were also displayed outside all business establishments.

After the SARS outbreak was brought under control, business in Chinatown gradually returned to normal. The notices regarding prevention of SARS were removed, but advertisements for herbal medicines have taken their place.

Protecting Self, Family and Others

From these data, there emerged a five-stage model describing the process of using preventive and protective strategies against SARS by the Chinese elderly (See Figure 1, p. 97).

Stage 1: Recognizing the Threat - Taking a 'Wait and See' Position

In this first stage, the elderly Chinese came to recognize the threat posed by SARS. The participants' experiences consisted of gradually recognizing the threat relating to contracting SARS as media reporting on the topic intensified. The Chinese

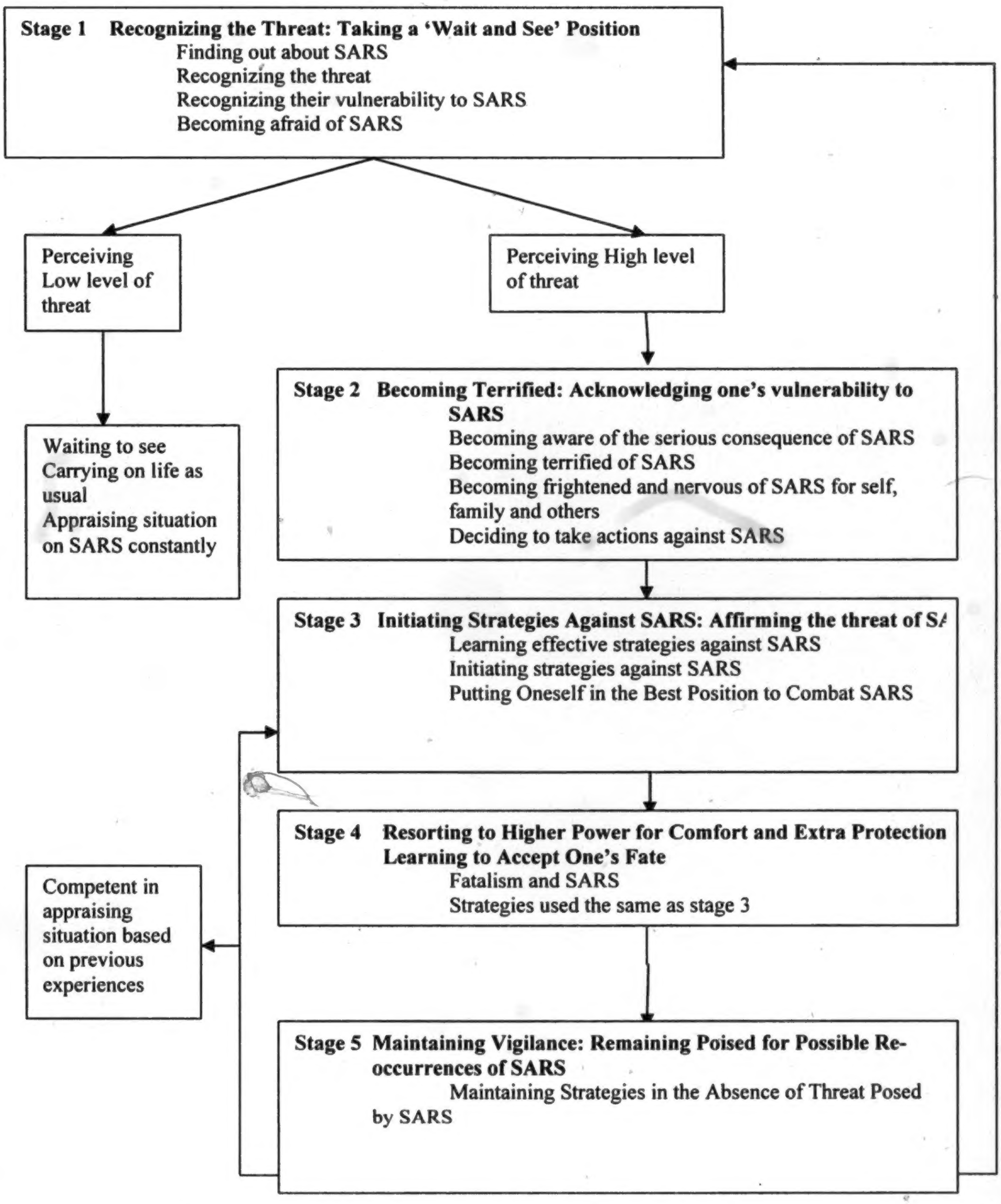
Stage 1 Recognizing the Threat: Taking a 'Wait and See' Position
Finding out about SARS
Recognizing the threat
Recognizing their vulnerability to SARS
Becoming afraid of SARS
Perceiving Low level of threat
Perceiving High level of threat
Waiting to see
Carrying on life as usual
Appraising situation on SARS constantly
Stage 2 Becoming Terrified: Acknowledging one's vulnerability to SARS
Becoming aware of the serious consequence of SARS
Becoming terrified of SARS
Becoming frightened and nervous of SARS for self, family and others
Deciding to take actions against SARS
Stage 3 Initiating Strategies Against SARS: Affirming the threat of S
Learning effective strategies against SARS
Initiating strategies against SARS
Putting Oneself in the Best Position to Combat SARS
Stage 4 Resorting to Higher Power for Comfort and Extra Protection Learning to Accept One's Fate
Fatalism and SARS
Strategies used the same as stage 3
Competent in appraising situation based on previous experiences
Stage 5 Maintaining Vigilance: Remaining Poised for Possible Re-occurrences of SARS
Maintaining Strategies in the Absence of Threat Posed by SARS

Figure 1: The Process of Protecting Against SARS

elderly went through a transition phase before entering into the second stage of the model.

Finding out about SARS

Participants found out about SARS from a variety of sources. The primary source of information for the majority was the Chinese newspapers: the *Canadian Chinese Times* (加華報), the *Chinese Journal* (光華報) and the *Edmonton Chinese News* (愛華報), all of which are published weekly and are free of charge. Two commercial Chinese newspapers, *Ming Bao* (明報) and *Sing Dao Ri Bao* (星島日報) are dailies published in Calgary and couriered to Edmonton. Chinese newspapers, radios, and television were the most common and important media for the Chinese elderly to obtain news regarding SARS.

News about SARS first appeared in the Edmonton community's Chinese newspapers on February 26, 2003. The coverage on SARS was very limited at the time, as little was known about the disease, and the news consisted of speculation about the origin of SARS and its mode of transmission.

In addition to newspapers, elders used other media to obtain news. Those who were unable to read because of illiteracy or failing eyesight listened to a community radio station that broadcasts Chinese programs daily from 7 p.m. to midnight or watched television news programs broadcast from Vancouver. These participants were generally older and less active, and lived in the nursing home.

One woman, who was 90 years old and lived in the nursing home, stated,

> I do not know, I just listened to the TV and I could not read the papers, as I could not see. I had a few pairs of spectacles but they did not work so I have not read

> any newspapers for a long time now. My eyesight is bad because of my advanced age.

Those who lived in the apartment for Chinese elderly or with their family in their own house also used the same media for getting news, so it was entirely dependent on the physiological limitations of the participants, as illustrated by the following quote:

> I learned about SARS from listening to the news because I cannot see very well since I retired. My eyesight is not good so I just listen to the radio and listen to the news from TV now.

The media provided all the participants with information about SARS, but Chinese elderly with family members living in Hong Kong, China, and/or Taiwan had yet another means of obtaining information. These individuals called their family regularly to get the latest developments on the SARS crisis, although the main reason for calling was to make sure that family members living in affected regions were doing well.

> Also, many of the elderly here still have relatives and family members living in Hong Kong, China and Taiwan and they were worried about their safety there. I know many Chinese elderly here in Edmonton who will call their family members who live in Hong Kong, China, and Taiwan and ask about the condition and situation regarding SARS over there and to make sure they are safe.

The telephone was not the only way in which the Chinese elderly kept in touch with family members in Hong Kong. One participant e-mailed his daughters every other day, preferring this method of communication over the use of news media, as it was convenient for him. He stated,

> I still have two daughters living in Hong Kong….I wrote and received e-mails from them every other day and I also asked them the situation in Hong Kong and what they were doing. They will write home every other day and update me on the situation in Hong Kong and what the Hong Kong governments' plans of action are, the information is very fast and accurate.

Participants who lived on their own and belonged to specific association, such as the Toishanese Women's Association, received news about SARS from members of the association who had recently returned from China. One woman explained,

> Well, I did not know about the SARS epidemic at first but I read the newspaper and found out later. Also I heard it from my friends who came back from Toishan [a city in Southern China] and told me that there was such incidence. I am a member of the Toishanese women association in Edmonton and we meet regularly to talk the latest happenings in Toishan and in China.

Thus, the participants in this study were all aware of SARS regardless of their living arrangements. However, those living on their own had more ways of finding out about the disease, from friends and through the use of computer technology. The latter applied only to those who lived on their own, as a computer was not available to individuals living in a nursing home for elderly Chinese. Moreover, Chinese elderly using other sources of information were more active and took part in activities organized by the community.

Recognizing the Threat

When SARS was first reported, participants living in Edmonton at the time did not consider it a threat, because there were no confirmed cases of SARS in Edmonton. Furthermore, the news on SARS at that time downplayed its seriousness, as little was known about the disease, and newspapers reports referred it as a type of pneumonia. The participants were relaxed and adopted a wait-and-see attitude. When the first case of SARS was diagnosed and confirmed in Toronto in early March, however, participants began to acknowledge and feel the threat of SARS in Edmonton.

The geographical distance between China, Hong Kong, and Canada, which played a vital role in convincing the participants of their safety from SARS, lost meaning when the newspapers reported the rapid spread of SARS to countries worldwide. Based on the newspapers accounts, the individuals moved from not worrying about SARS to recognizing the possibility of contracting the disease. The following quotations clearly illustrate the participants' feelings of not worrying at the onset of the SARS epidemic.

> I personally did not do anything at first. I was in Canada and there was no need to be afraid or worried as there were no cases of SARS here at that time and we are so far away from Hong Kong and China.
>
> Like for instance, we do not have concerns, as there are no cases here. Edmonton is so far away from Hong Kong and China and we do not have a case of SARS here, so we do not have to worry at this time.

The wait-and-see stance taken by participants living in Edmonton lasted only briefly. They began to feel the threat of SARS with the increasing number of people who were being infected worldwide, in particular health care professionals in Hong Kong, China, and Canada:

> At first the health care professionals did not know the seriousness of SARS; then when more and more nurses and doctors got infected at PWH [a teaching hospital in Hong Kong], people started to think that SARS was dangerous. When *Amoy Gardens* (淘大花園) was infected, people started to think that the situation was extremely serious.
>
> I heard of SARS from the news and newspapers but I never thought things would go so bad so quickly. It was when SARS spread so quickly among nurses and doctors at [Prince of Wales Hospital] and in hospitals in Toronto that people recognized that they were dealing with a serious disease.

Much of the news about SARS originated from Hong Kong and China, the epicenters of the disease. Elderly Chinese in this study paid extra attention to such news, as many had immediate family members living there. They tracked the latest development of SARS in those countries, because they were worried about the safety of their loved ones.

Recognizing Their Vulnerability to SARS

Once the Chinese elderly acknowledged that there were threats imposed by SARS, they quickly recognized their vulnerability to the disease, as news that the disease had spread from the hospital to the community began to surface. The disease, once thought to be under control and confined only to the hospitals, was threatening the community, with news of apartment blocks in Hong Kong being declared infected zones and people being infected in the community in great numbers. News from Toronto also confirmed the spread of SARS to the community, with people undergoing quarantine to stop the spread of the disease. The rapid spread of SARS from the hospitals to the community reminded the elderly Chinese that they were vulnerable:

> No one expected the disease to spread so quickly within the hospital, and then people began to think that SARS was no longer a problem in the hospitals….I think it took everyone by surprise as we were not expecting it to spread so quickly.

> At first, people were not worried as the government said that the disease will not spread to the community and that it is confined to the hospital, so no one took anything seriously….But when it spread from the hospitals to the community in Hong Kong and in Toronto, people became scared.

The Chinese elderly felt that because of their age, they were in a much more vulnerable position for getting SARS than others. This was reinforced by reports published by Edmonton's Capital Health Authority and WHO, which stated that individuals with lower immune systems were more prone to contracting SARS. These reports specifically included the elderly in its high-risk groups. The mortality rate of 50%

among individuals over 60 years reported by WHO (2003) furthered fuelled the feelings of vulnerability among the participants:

> Yeah, the mortality rate is much higher in those who are over 60, I was very scared too as I am an elderly as well [laugh]. I guess our immune system is weaker. This makes them more susceptible to SARS.
>
> The elderly are more prone to getting SARS I think because of their lower immune system. It is worse for those who are over the age of 60 to get the disease as the mortality rate is close to 50% they say, so people are of course scared and I worried about it too.

Experiences of Participants Who Were in Hong Kong during the SARS Crisis

Chinese elderly who were in Hong Kong during the SARS epidemic and returned to Edmonton explained that they felt more vulnerable to SARS while in Hong Kong, as the media stepped up their reporting of the SARS situation, including a daily death toll, and the number of quarantined housing estates continued to grow. Close proximity to the SARS-infected area, coupled with intensive reporting on the disease, sparked fear and further reminded these participants of their vulnerability to SARS. These participants stated,

> I watched it on TV and heard it on the radio. They would broadcast a few times every hour. They would announce the number of people who had died and the location of the apartment blocks that were placed under quarantine. It was very scary indeed and the apartment blocks involved were all over Hong Kong, Kowloon and the New Territories. At first, they did not report this information but later they were asked to let the public know and the apartment building and blocks were broadcast then….I was very worried that I would get SARS.
>
> I heard more and more about SARS. The media started to report regularly every hour and I got more scared. I thought at that time the chance of getting SARS was higher when they reported each day the number of people who were infected in the community and how many people had died and I got very scared.

It appeared that regardless of whether the participants were in Edmonton or in Hong Kong at the time of the SARS epidemic, they all felt an increased vulnerability to catching the disease based on the intensity of the media coverage. Those who were in Hong Kong also felt an increased intensity because of their closer proximity to the disease.

Transition

A transition period occurred when participants realized their increased vulnerability to SARS and became afraid of contracting it. During this transition stage, the Chinese elderly were increasingly frightened of the disease, as information of spread of the disease, its rapid transmission, and the lack of effective treatments for SARS began to appear in the media reports.

Becoming afraid of SARS

The participants described their increased fear for SARS when rapid spread of the disease among health care workers (HCWs) in the hospitals and among individuals in the communities was broadcasted. The large number of HCWs affected by SARS worried the Chinese elderly for three reasons: (a) these were professionals who wore necessary equipments for protection against the disease while at work but were still infected; (b) the routes of transmission of SARS were still unknown, and there were many uncertainties surrounding the disease; and (c) there has not been a disease that affected HCWs to such a great extent. The following quotations describe some of the participants' concerns:

> One has to place trust in the doctors, and the doctors were in trouble as well now, as some of them were also infected. Perhaps this was the scary part as I had never heard of any other diseases that affected health care professionals to such an

> extent. The doctors and nurses were taking all the necessary precautions already I think, and yet they were still affected, so of course people were scared.
>
> I was afraid of the infection (SARS) and it spread very quickly from one person to many persons not just one or two people. You see the nurses at the hospital also got infected when helping to put the tube [endotracheal tube] into one of the patients….I have never heard of another disease that affects nurses and doctors to such an extent, is it because they did not know how SARS spread at that time? I do not know.
>
> I never thought things would go so bad so quickly. It was when SARS spread quickly among nurses and doctors at PWH and in hospitals in Toronto that people recognized that they were dealing with a serious disease.

The report that the SARS virus might be related to the common cold was not comforting news to the Chinese elderly; it only added to their apprehension. They did not understand why a virus related to the common cold could be so deadly, why the medical profession could not find a cure, and why it was still not under control. They suspected that the virus that caused SARS was more virulent than the cold virus, and conventional medicine was at a loss at this time. The participants were not sure why the disease was so contagious and were worried that the virus could mutate in response to the individual's immune system:

> Well, the common cold is quite contagious but the SARS virus can spread even faster, it is more contagious and the germs also mutate easily from one person to another. It mutates according to each individual's immune system, therefore, it is very scary.
>
> Not the common cold virus. The common cold will be cured after a few days of medicines. This virus is difficult and different as so many doctors are having trouble with it. Not enough is known about SARS at this time and that is why people are scared and the doctors are all guessing at this point.

Chinese elderly became afraid of SARS when the high rate of infectivity, the lack of definitive treatments, and its high mortality rate among the elderly were made public.

The media played a pivotal role in informing the Chinese elderly and also had an influence on the change in their response to SARS, from feeling vulnerable to getting the disease to becoming afraid of SARS.

Perceiving a High Level of Threat: Chinese Elderly Living on Their Own or Living With Others

Chinese elderly who lived on their own or with their family considered themselves at higher risk of contracting SARS than those living in the nursing home for Chinese elderly because of the increasing number of infections occurring in the community in infected areas in Asia and in Toronto. No one was sure whether people they met were free of the disease. All of these Chinese elderly were very independent and were involved in many activities in and around Chinatown. Many were taking English lessons twice a week at a centre which provides multicultural services, and some also took part in volunteer work at an apartment for Chinese elderly and the nursing home for elderly Chinese. Thus, Chinese elders who lived on their own or with family members socialized more often and perceived themselves to be at higher risk for getting SARS. In addition to perceiving themselves at high risk for SARS, they also related the risks felt by other Chinese elderly living in Edmonton:

> There were people who were afraid to go to Chinatown. People were scared, they thought going to China town was risky and carried a higher risk of exposing oneself to SARS. I know one *ah mo* ['elderly woman'] who lived near Southgate, and she did not go to Chinatown for over two months during that time.
>
> I will be afraid to go to places where there are many people during the epidemic, especially Chinatown where there are many Chinese, as you do not know who has just returned from Hong Kong or China.

Chinese elderly not only considered visiting Chinatown risky during the SARS outbreak but also deemed the mode of transportation to Chinatown dangerous, as buses serving Chinatown were often full of Chinese patrons. Therefore, Chinese elderly who lived outside of Chinatown perceived themselves to be at higher risk of contracting SARS if they chose to continue their scheduled activities in and around Chinatown:

> The attendance [at social activities] was lower as those elderly who live far away did not come….These elderly were scared of coming to Chinatown as they did not want to take public transportation at that time and little was known of the routes of transmission for SARS. They felt that it was too risky to take the bus to Chinatown.

Perceiving a Low Level Threat: Chinese Elderly Living in the Nursing Home

Not all participants, however, perceived themselves as at high risk for getting SARS. Chinese elderly who lived in the nursing home considered their probability of contracting SARS to be very remote. There were good reasons for them to think this way, as during the epidemic, the nursing home was practically closed to the public. Every individual who stepped foot into the institution was carefully scrutinized, and visitors to the nursing home were required to fill out a health survey form, which included a section declaring that they had not recently returned from a SARS-infected country. The Chinese elderly living in the nursing home rarely went out, and those who normally went home for the weekend canceled their visits during the SARS outbreak. Generally, the participants living in the nursing home perceived a very low level of threat from SARS by practicing self-imposed quarantine, thus ensuring that the individuals would not bring back the SARS virus from outside. The administrative staff of the nursing home acted as gatekeepers to keep SARS out of the institution by screening visitors carefully.

Participants living in the nursing home felt safe from SARS and were happy with the steps taken by management.

> There were notices up outside the nursing home asking people who recently returned from Hong Kong to stay away from the lodge at least for 10-14 days after they returned. The management team was very diligent in tracking who came in and out of the nursing home and people who came in were screened carefully at the reception desk. They had to fill out a form and they had to sign in and out.

The residents of the nursing home all felt that the administrative staff had done their share to protect them and minimize their chance of exposure to the SARS virus. However, they also did their part by decreasing the likelihood of contracting the disease from outside and spreading the virus to other residents by staying in the nursing home during the time when SARS was a major concern in Canada.

> I usually go home every week…I did not go to my children's' houses during the SARS outbreak as I did not want to take a chance of possibly bringing the virus back to the nursing home. I did not go for a couple of months, and I started again once everything settled and it was safe for everyone.

Stage 2: Becoming Terrified—Acknowledging One's Vulnerability to SARS

This second stage began when the fact that SARS had spread to more than 30 countries including Canada, within a short time was reported over local radio stations. The medical profession worldwide agreed that SARS was the first infectious disease of this century that had had such a devastating effect on previously healthy health care professionals in all the countries affected. This news worried the Chinese elderly, as these health care workers were known to have donned full protective clothing against SARS and yet were infected. The participants felt that they were more vulnerable to getting the disease when they learned that young people were also gravely affected by SARS:

> One had to place trust in the doctors and the doctors were in trouble as well now as some of them were also infected. Perhaps this was the scary part as I had never heard of any other diseases that affected health care professionals to such an extent. The doctors and nurses were taking all the necessary precautions already I think, and yet they were still affected. Of course people were scared and we felt helpless.

> I was afraid of the infection [SARS] and it spread very quickly from one person to many persons, not just one or two people. You would never expect that to happen as they were fully protected already and still caught SARS, so I was very scared of course. I have never heard of another disease that affected nurses and doctors to such an extent.

News about the rapid spread of SARS and the increasing number of individuals affected by the disease reinforced in the minds of the participants that everyone was vulnerable to the disease, especially the elderly.

Becoming Aware of the Serious Consequences of SARS

The rapid spread of SARS among health care workers and to more than 30 countries outside of Asia was not the only reasons why participants worried about contracting the disease. Another factor to their fear was the rapid deterioration of those affected by SARS and the lack of a definitive treatment for the disease. When the news media reported the increasing number of deaths from SARS, the Chinese elderly began to realize the grim consequences of the disease. The participants had no previous experiences with diseases that would not respond to treatment by today's medical technology. Therefore, they were surprised at the high mortality for SARS, given that conventional medicine and medical research were at the peak of their development. Chinese elderly who lived alone were the most afraid of the deadly consequences of SARS, as the majority kept themselves abreast of the latest developments of SARS.

Participants appeared very knowledgeable, and they expressed their fear of the consequences of SARS:

> I also read the newspaper, and Mainland China announced that there was no cure for this disease at that time, so I thought that it was very dangerous and many people were scared of SARS as so many people were infected in such a short period of time. I guess I can understand why people are scared as the death rate is so high. Also, people who have gotten sick with SARS also very quickly become very ill.
>
> People were scared of SARS I think because it was such a dangerous disease as there were no treatments at the time; you know the mortality rate is very high and you do not know when you have the disease, and when the symptoms appear it is already too late I believe. People got sick very quickly and many died as there was no treatment at the time.

Chinese elderly who were in Hong Kong at the beginning of the SARS epidemic expressed an even higher level of fear. The news they received was more immediate and more frequent than in Edmonton, with updates of news on the mortality rate from SARS and the number of housing estates being placed under quarantine every 15 minutes. It was therefore an extremely stressful situation:

> They would broadcast a few times every hour. They would announce the number of people who had died [from SARS] and the location of the apartment blocks that were placed under quarantine. It was very scary indeed and the apartment blocks involved were all over Hong Kong, Kowloon and the Territories. You could just imagine the stress I went through during that time. I could not sleep, I could not eat, and I lost over 10 lbs during that time.
>
> I went to Hong Kong on March 4, after I had been there for just a few days, SARS appeared. I watched TV and I was very scared, very scared. The government broadcast several times an hour telling people about the number of people who had died from the disease [SARS]. I did not dare to go out; I just stayed home and watched TV all the time and I got more scared as I watched.

The increasing number of people infected by SARS and the grave consequences of the disease increased the fear among all of the participants. They all worried and became terrified of SARS, especially those who returned to Edmonton, as their fear continued; they worried about being infected and spreading the disease to others.

Becoming Terrified of SARS

Events that led to the participants' becoming terrified of SARS can be viewed in a chronological order. When the disease was first reported, no one knew of its infectious nature, and the medical profession knew little of this disease. Later, SARS was widely recognized by the medical profession worldwide to be the most dangerous disease among all other infectious diseases because of its rapid transmission among previously healthy health care workers. At first, however, the disease was considered to be contained in hospitals. When this was no longer considered true, as SARS had made its way into the community, people became terrified. The news of the reported spread of SARS (非典型肺炎) in Amoy Gardens (淘大花園) and Toronto worried the participants, as the disease was now in Canada. News of SARS spreading into the community, regardless of whether it was Hong Kong or Toronto, worried the Chinese elderly, as many have relatives in both areas. The distances between the cities affected by SARS played a role in eliciting fear among the Chinese elderly. They started to worry more when cases of SARS were reported to have spread to communities in Toronto. The following excerpts demonstrate the participants' feelings of fear:

> When it [SARS] was first reported in Hong Kong, no one knew much about it.…No one paid much attention to the problem at first, we all believed that things were fine and we were not afraid. At first the health care professionals did not know the seriousness of SARS....When Amoy Gardens (淘大花園) was infected, people started to think that the situation was extremely serious and people started to worry and were afraid, because the route of infection was not known at that

> time. When SARS came to Toronto and spread from the hospital to the Toronto community, I became more and more terrified of SARS.
>
> At first, people were not worried as the government said that the disease would not spread to the community and that it was confined to the hospital, so no one took anything seriously and were not afraid, thinking that everything was under control. We all believed that the government and the Department of Health had things under control. When that happened [SARS spreading to the community], I began to get scared of SARS.

Participants placed much trust in the medical profession. Yet, when previously healthy health care workers began to get infected in large numbers, this clearly injected fear into the participants:

> Also, at the beginning, the government in Hong Kong and Canada were reassuring the public that the disease would not spread to the community and they [the hospitals] had done everything to prevent the spread of the disease, and so no one should worry….It became more serious, more serious and the more I heard about it, it became more horrific and scary when more doctors and nurses got sick and the mortality was said to be close to 50% for us elderly.

The Chinese term for SARS is *fai dain yin fei yan* (非典型肺炎), a Chinese term meaning "atypical pneumonia," and this term created confusion for some of the elderly. As they believed that there were effective treatments for pneumonia, they did not understand when the medical profession declared that there were no definitive treatments for SARS. The report that the SARS virus was related to the common cold did not provide comfort but further confused the participants, and some doubted whether the virus was, indeed, related to the common cold. The participants stated that they were afraid and could not believe that SARS was related to the common cold, and some began to doubt and lose confidence in the medical profession.

> Not the common cold virus. I did not think the two diseases were related. The common cold could be treated after a few days of medicines. This virus was difficult and different as so many doctors were having trouble with it. Not enough

> was known about SARS at this time and that was why people were scared and the doctors were all guessing.
>
> I thought it was just the common flu or common pneumonia that occurred during the winter month because of the way they called it "atypical pneumonia," so I was not really too scared at the beginning. But, that was not the case; they [the medical profession] were talking about a more deadly disease than common pneumonia. I was confused by the name they called the disease.

Many participants compared SARS to other infectious diseases and concluded that SARS was more risky than diseases such as smallpox, tuberculosis, and cholera. They tried to make sense of SARS by associating it with diseases with which they were familiar. They all stated that they were fearful of SARS, as all other infectious diseases had known treatments and the doctors were all aware of what they were dealing with:

> My grandmother had smallpox and my mother still visited her at that time, it was a very long time ago....but it was not as dangerous as SARS. The doctors knew how to treat smallpox and they knew the cause for it as well. SARS was different, nothing was known and nothing was sure.
>
> I think SARS was more serious and dangerous than other infectious diseases because people who contracted it could die very quickly. AIDS and TB were also infectious but they were treatable. I heard that SARS was more fatal than any other infectious diseases that I had previously experienced.

Becoming Frightened and Nervous of SARS for Self, Family, and Others

The Chinese elderly in this study were not only frightened and nervous about contracting SARS, but they were more concerned about infecting their family and others. All the participants stated that they were not afraid to die if they contracted SARS because of their age and because they had led long and fruitful lives. This fear of spreading the disease to family and others was more intense among participants who lived with their family and those living in the apartment for Chinese elderly. Chinese elderly living in the nursing home were less frightened of contracting SARS, as visitors to the nursing home were closely monitored during the SARS crisis. Moreover, the administrative staff of the nursing home discouraged visiting during that time. This fear was legitimate given the rapid transmission of SARS, especially among those who were in close household contact, and the poor prognosis for elderly patients:

> I am not afraid of contracting SARS because I am old and have lived my life the best way I could…If I contracted SARS, I would not like my children to come and see me….I would like all my children to be safe and well. I do not want to infect them or others with the disease, as I would not be able to live with myself.

> People were all scared of getting SARS in public places. I did not just think about myself. I am old and I really am not afraid of getting SARS, but I did not want to spread it to my son and the family.

It was evident that Chinese elderly were all more concerned about passing SARS on to someone than about contracting the disease themselves. They made it clear that they would prefer that their family not visit them if they had been exposed to SARS, as they would not be able to bear the thought of being responsible for infecting them. The Chinese elderly felt frightened and feared that they might spread SARS to others. These feeling were intensified among those who had returned from Hong Kong, as their likelihood of being infected was much higher than that of individuals in Edmonton.

> Yes, I did not want to take any chances of infecting my family or anyone in the community with this dreadful disease. I am not afraid of dying from SARS but I would not feel good if I passed it on to someone else.

Deciding to Take Actions against SARS

The fear of catching SARS and passing it on to family and others convinced the Chinese elderly to be active and take all necessary steps to protect themselves and others against SARS. Many of the participants believed that they should take an active role to prevent catching the disease. The main reason for the participants' taking actions against

SARS was to protect the family and others, as they were not willing to be responsible for infecting others with a deadly disease. The Chinese elderly felt that it was their duty to do their best to protect themselves and others against SARS. They were brought up to believe that it was the right and moral thing to do as responsible citizens.

The participants' decision to take action against SARS set the third stage of the model, in which they took an active role in seeking out the recommended strategies against the deadly disease.

Stage 3: Initiating Strategies Against SARS - Affirming the Threat of SARS

This stage began when the participants initiated strategies against SARS, and they all believed that prevention was the best strategy against a disease that was extremely deadly and with no definitive treatments.

Learning Effective Strategies against SARS

The media were the participants' main source of information concerning strategies against SARS. There was no guarantee that these strategies were effective, however, as indicated by the high number of HCWs infected by SARS, but the participants were all knowledgeable about the recommended actions to protect themselves and others from contracting the disease. Although Edmonton had no confirmed cases of SARS, all of the Chinese elderly were aware of the need to learn about the strategies and were ready to implement the strategies if the need arose. Chinese elderly who were in Edmonton at the time of the SARS epidemic all stated they would continue their routine of keeping their living environment clean. The majority of them thought that their personal hygiene was adequate but had increased the frequency of washing their hands since the SARS outbreak. The participants' willingness to learn strategies against SARS was reflected in their words:

> I just heard and learned about the preventive strategies from TV, like if there were cases happening in Hong Kong and the health department suggested certain types of preventive strategies, we need to follow them, right? I learned of all the strategies against SARS and would use them if there were confirmed cases here.
>
> I felt that Edmonton was not an infective area, but the people were quite conscientious and all the elderly knew about strategies to protect themselves against SARS. We all learned about these from watching the news and reading the newspapers. Yes, everybody knew about the use of masks, stayed away from crowded places and made sure things were clean. I would continue with my cleaning schedule as before but for sure I started to wash my hands more often now.

All of the participants learned about the recommended strategies against SARS from the media. Chinese elderly who had family members who worked in the health care professions received extra information on how to protect themselves more effectively. This included the use of specific masks, such as the N95 and how to put on the masks properly to provide the best protection against the disease. One participant illustrated this adequately:

> I was told by my daughter who works as a nurse in the hospital, so I know what to buy as she told me to buy the specific type of mask – the N95 masks. She also taught me how to put on the mask properly and that I had to cover the nose and the mouth completely.

The media played a crucial role in providing information on prevention of and protection against SARS. Health departments, including Capital Health, distributed pamphlets in English and Chinese on strategies against SARS to all institutions and businesses around Chinatown. The Chinese elderly were familiar with the contents, as they were similar to what was reported in the radios and the newspapers. Particular strategies, such as observing one's hygiene and covering one's mouth while coughing, were emphasized by the nursing home for elderly Chinese, a Chinese Baptist Church, the a centre for multicultural services, and the apartment for Chinese elderly, and special notices were displayed in elevators and inside the buildings. These strategies were highlighted to make them visible in crowded areas and served as reminders to visitors or residents of the building.

Initiating Strategies against SARS

The participants were all aware of the different types of strategies against SARS. The types and extent of protective strategies utilized by the participants depended on the whether they were in Hong Kong at the time of the SARS epidemic.

Strategies Used by Chinese Elderly Who Were in Hong Kong during the SARS Crisis

Chinese elderly who were in Hong Kong at the time of the SARS crisis reported having instigated the full scope of protective devices against SARS as recommended by the Hong Kong Department of Health. As the number of individuals infected by the virus increased, so did the level of fear experienced by the Chinese elderly, who believed that they needed to take all precautions to protect themselves. These participants described the full scope of protective devices as follows:

> The Department of Health in Hong Kong advised people to clean their homes more often, to wear masks for protection when they go out to the public areas like the wet markets, super markets where there are more people. They also asked people to stay home and avoid going out to public places if possible. We were asked to avoid places where there are too many people, and people were reminded to wear masks when they went to public and crowded places.

> I only went to the supermarket and did not stay there long. I just went to get the groceries, brought the mask with me and I would get enough food for a couple of

> days so I did not have to go out again for a while. The Department of Health advised people to stay home and not go out unnecessarily.

Participants reported that they did not go out often during the peak of the SARS epidemic for fear of increasing their risk of getting SARS. However, there were errands such as grocery shopping that needed to be attended to, and these elderly developed a routine, which they followed religiously:

> The government broadcast several times an hour telling people how to protect themselves against SARS, and so when I went out I had to wear a mask to protect myself as I did not know who was infected on the bus or in the market. So, to be safe, I did not dare to go out, I just stayed home and watched TV all the time and I got more scared as I watched.

> When I returned home from grocery shopping, the shoes were disinfected with a towel soaked with bleach before entering the house. I took off my glasses, cleaned them with detergent including my keys, after that I would change all the clothes and washed them right away. I would take a shower, wash my hair, clean the floor and then I would get ready to make the meal. You know, we all needed to be safe at that time.

Keeping one's apartment clean was vital to ensuring the control of the SARS virus. Participants followed a strict routine of disinfecting their household using full-strength bleach as a cleaning agent. They admitted that their routine for cleaning changed after the SARS epidemic and that they were aware of the importance of adhering to the recommendations:

> I also poured bleach into all drains and cleaned the house thoroughly everyday using 1:99 [a type of bleach specifically recommended by the Health Department in Hong Kong for disinfecting around the house]. I used 1:99 to wipe down the metal gate, mop the floor and that's the preventive process we took. After the government announced the preventive strategies, every night we would use bleach and pour it into the drains to disinfect.

> When I was in HK, I cleaned the place with bleach everyday and poured bleach into the sink as well daily. It was recommended and everyone was doing it and I

> thought it must be necessary to keep the SARS virus out, so I followed the instructions and used bleach for cleaning everything.

Chinese elderly who were in Hong Kong during the SARS epidemic knew all the necessary precautions against SARS, but they chose to stay home out of fear and because staying home would be the best way to avoid infection.

Strategies Used by Chinese Elderly in Edmonton

Chinese elderly who were in Edmonton at the time of the SARS epidemic did not implement all of the recommended strategies because there were no confirmed cases of SARS at that time. They were more relaxed and chose to implement strategies that involved paying more attention to one's hygiene, keeping one's place clean, and changing one's routine by visiting Chinatown less often. The elderly all agreed that having no SARS cases did not mean they could let their guard down; instead, individuals should pay more attention to preventing SARS. It appeared that many believed that besides keeping their home clean, it was also important to stay away from Chinatown as they viewed it as a dangerous place as the chance of contracting SARS was higher in Chinatown:

> The most important thing was to pay attention to what you ate, as your health depends on the food that you eat and I believe what she [participant's friend] said. At that time I did not go to places where there were too many people and I stayed away from Chinatown. I was very careful with personal cleanliness and washed my hands more frequently. Like, I just came to meet you and I went to wash my hands in the washroom before you came. I never did that before, it was only after SARS that I initiated this new routine and I think it was a good idea.
>
> During the peak of the SARS infection, my husband and I stopped going out to eat supper and yum cha in Chinatown for almost a month. We just bought the food home and cooked at home. We watched the news all the time and found that there were cases in Toronto and listened to the news for cases in Edmonton.

The Use of Masks

The Edmonton participants all concurred that when going out, especially to Chinatown or the X store (a grocery store frequently visited by Chinese in Edmonton), it would be necessary to wear a mask to protect oneself. The use of mask was a must, however, for those who were visiting Hong Kong at the time of the SARS epidemic. Besides washing one's hands and keeping one's place clean, wearing a mask when one went out was strongly advised by the Department of Health. The mask was used as a physical barrier and first line of protection against SARS when the elderly went to places that were considered high risk for exposure to SARS, such as the hospital. However, using a mask was not pleasant for those wearing them. One participant described her experiences:

> When I went out which was very rare I had to wear a mask to be safe and it was very stuffy and uncomfortable so I decided not to go out at all. Especially going to the hospital now, we had to wear the masks. The news about wearing the mask was on all the time. I did not like wearing the mask but I wore it when I went out even if I went to the garden.

The Health Department advised the use of masks, but the participants also felt pressure to use them if everyone around them was wearing them. They felt compelled to follow the majority, as they did not want to stand out. The feeling of being a member of a group was important to the participants:

> People would wear a mask when they went out of the house basically, as it was strongly advised by the Health Department, so everyone listened and no one went out without a mask at that time. I guess you do not dare to go out without a mask, as everyone wears one so if you do not have one on, people will look at you in a strange way and of course stay clear of you as well. There was pressure I say to wear a mask when going.

Although there was pressure to use masks, some participants reported that, on the contrary, they were obliged to abandon the masks, because no one wore them and they did not want to be the odd one out. There was a sense of conforming to the group and that no one was willing to draw attention to him- or herself because he or she was not like the others. The likelihood of contracting SARS was considered low in Edmonton, on the other hand, and this influenced the Chinese elderly tremendously in their decision not to use the masks:

> I did not wear a mask because people would start looking at me and wondered what I was doing, so I did not dare. But I would use a piece of tissue and covered my mouth from the time I went on the bus till I got off the bus, because it would be less obvious.

The majority of the Chinese elderly agreed that the use of masks in public places was important and necessary to protect oneself and others from SARS. However, a few stated that the use of masks was required when visiting places that exposed the individuals to a higher risk of contracting SARS. In this participant's words, if a person chose to wear mask in all public areas, then it would be considered *xiao ti da zuo* (小題大做) ('doing things in an overly exaggerated manner'), and it was also impolite from her viewpoint:

> You need to see others and they need to see your face, right? But, in the hospitals, for the doctors and nurses, it is necessary and is better to wear a mask as it can provide a bit of isolation and protection from the germs. But like us ordinary people when you go out or in the bus, I think it is not essential for us to wear. If you do this, it will be xiao ti da zuo (小題大做) and is not as good; it's different in the hospitals.

It was noted that the Chinese elders who felt that wearing a mask was not necessary were in Edmonton, where there were no confirmed cases of SARS. The use of masks was related to the place where the participants were living at the time of the SARS epidemic, their belief regarding the mask's effectiveness, and whether the area was considered at high risk for SARS infection.

Attention to Cleanliness

Aside from wearing a mask, the most important strategy against the infection was paying increased attention to personal hygiene. This went beyond increasing the frequency of hand washing; the individual also needed to ensure that his or her living environment was clean. There were also differences in the use of cleaning agents among participants living in Hong Kong and those who were in Edmonton at the time of the SARS outbreak. The advice put forward by the Department of Health in Hong Kong was very specific on the type of cleaning agents individuals needed to use to disinfect the house, whereas Capital Health in Edmonton made no such recommendations. Differences in the cleaning routines between the two groups of participants were clearly affected by the media and the urgency of the situation. A participant who was in Hong Kong at the time of the SARS outbreak described the cleaning routine as follows:

> Well, it has changed quite a bit since the occurrence of SARS. I did not use bleach to clean the floor; I cleaned the floor before but never used bleach. Now, everything needed to be cleansed with bleach around the house.

The participants who were in Edmonton described their routine for cleaning their house in this way:

> I think one needs to keep the living environment clean. We cleaned the house daily but we did not use bleach as the house is clean already. We often dusted and vacuumed daily and we used the regular cleaning agents to do the sink and toilet.
>
> Our personal hygiene practices were also very good even before SARS. Well, my daughter comes every other day to help us clean, she does not use bleach and the

> ordinary cleanser for cleaning purposes and she makes the meals for us. Every thing is clean and not a problem. I do not think SARS had any effect on the way we keep our place clean. One needs to be clean all year round and this will decrease the chances of getting infected.

The Use of Kung Fai (公筷) (Public chopsticks)

All the participants in this study reported the use *of kung fai (公筷)* (public chopsticks) when they went to eat at Chinese restaurants. Kung fai (公筷) (public chopsticks) were also used when guests come to dinner. The use of kung fai (公筷) (public chopsticks) was strictly enforced by the participants and the restaurants supply them during the SARS outbreak. One participant stated:

> The restaurants all supply kung fa" (公筷) (public chopsticks) as it is more hygienic. So we used the kung fai (公筷)to get the food and placed them in our bowl. We never used to bother with the kung fai (公筷)before but the use of it is expected after the SARS outbreak.

None of the participants reported difficulty of using kung fai (公筷) (public chopsticks) as it was recommended by the Hong Kong Department of Health as a precaution. However, they also reported the use of public chopsticks when guests were invited for dinner. This was both for hygienic reason and was considered proper etiquette for the Chinese. One woman explained:

> Of course we used kung fai (公筷) (public chopsticks) to eat in the restaurants. This was recommended by the Hong Kong Health Department for hygienic reason. Yea, I would put two pairs of kung fai (公筷) (public chopsticks) on the dinner table if we had quests for dinner. This was expected of the guests and considered good manners. The use of kung fai (公筷) (public chopsticks) was much more during the SARS outbreak.

The use of kung fai (公筷) (public chopsticks) was not foreign to the participants but the outbreak of SARS put the practice to the forefront and all the participants concurred that the use of public chopsticks was necessary to protect themselves and others from the SARS virus. One participant stated:

> Well, we use kung fai (公筷) (public chopsticks) before but the outbreak of SARS really scared everyone. So, we thought it was a good idea to use them (meaning public chopsticks) again to protect others and ourselves against the SARS virus.

Isolating Strategies against SARS

The Chinese elderly in this study all agreed that the most effective strategy against SARS was to avoid going to places that were crowded, especially places in Edmonton that were frequently visited by Chinese. The participants all agreed that staying away from places that were known to carry a high risk of contracting SARS was sensible. There were differences between participants who were in Edmonton and those who were in Hong Kong as well. Again, these differences were related to the number of SARS infections occurring at the time in both places. The experiences of these two groups of participants will be discussed separately to illustrate the differences in experiences in relation to avoiding crowds.

Hong Kong Experiences

The four participants who were in Hong Kong during the SARS outbreak were afraid of SARS, and the information they received from the Department of Health advised individuals to avoid crowded places. From the newspapers and reported by Chinese elderly who returned from Hong Kong, there were places in Hong Kong known as *hei dian* (黑點) (black spots) which contained a larger number of individuals who were infected by the SARS virus. One of these places was Amoy Gardens (淘大花園), an apartment block. People who lived in or near Amoy Gardens (淘大花園) shopped for food at the wet market there before the SARS outbreak. After the outbreak of SARS cases at Amoy Gardens (淘大花園), people stopped shopping there, as they were worried about infection. Instead, they would go to other markets in other housing estates. Fear of infection and the media hype about the number of individuals who had been infected branded Amoy Gardens (淘大花園) an 'unsafe' area to visit. It was ironic in a way; the area around Amoy Gardens (淘大花園) was not crowded after it had been declared a black spot for SARS, but still people were not willing to take any chances. The experiences of fear and the reasons for avoiding particular regions in Hong Kong were described effectively by one Chinese elder:

> All of the shops in Amoy Gardens (淘大花園) were closed; all the fast food places restaurants were not open, restaurants and all other shops were not open. The wet market was open but people would go to shop at the wet market in Kwun Tong instead, because Amoy Gardens (淘大花園) was considered hei dian (黑點) the black spot for SARS.

Avoiding Amoy Gardens (淘大花園) was not enough protection for participants who lived nearby, and many moved out of the area to stay with relatives or friends during the peak of the SARS outbreak. Individuals who moved out were mainly elderly, and they moved at the insistence of their children because of the high mortality rate of SARS for those over the age of 65. A participant described this self-imposed isolation:

> I went to stay with my daughter for over a month myself. My daughter lived in Pokfulam and they had no cases there as there were not too many people there and there were many trees there….She forced us to move. We did not want to move initially.

Chinese elderly agreed to move to "safer ground" only at the insistence and request of their children and believed that it was for their own good. They did not want their children to worry about their well-being and were happy that the children were concerned about them.

Besides staying away from crowded places, Chinese elderly who were in Hong Kong during the SARS outbreak avoided hei dian (黑點) designated "black spots" for SARS because of the high chances of contracting the disease. Participants listened to the news and monitored the situation closely, and moved back to Amoy Garden only when the Department of Health deemed it safe to do so.

Edmonton Experiences

The participants who were in Edmonton had an easier time than those who were in Hong Kong at the time of the SARS epidemic, although, even in Edmonton, health authorities recommended that individuals avoid areas where there was an increased number of people. For that reason, the participants cut down on visiting areas where there were many Asians, and in particular Chinese, as there were more cases of SARS from China and Hong Kong. Thus, the participants visited Chinatown less frequently during the SARS crisis, as many were afraid that individuals whom they met had recently returned from SARS-infected areas such as Hong Kong or China but had not undergone the full isolation period. This fear was depicted in two participants' quotations:

> I live with my son and his family and I took the bus and the LRT to the Chinese Multicultural Centre for my English lessons… Of course I did not travel unnecessarily only for schools twice a week. There are many who take buses in Chinatown, they will not take them if the bus was too crowded. Therefore, many elderly I know would take the bus when it was not too busy. People were scared to go to Chinatown as there were people who returned from Hong Kong but would not say anything and still go to *yin cha* (飲茶) [literally translated as 'drink tea' it is a term used to describe when people go for brunch in a Chinese restaurant].

> But the other day I was at the restaurant with another friend, one of his friends came over, talked for a fairly long time, and told my friend that he just came back from Hong Kong two days ago. I heard that and I immediately asked for the bill and left. Well, he needs to quarantine for 10 days and if he returned only 2 days ago, so I left and I need to avoid this type of people.

During the SARS outbreak, participants in Hong Kong and in Edmonton all avoided the so-called hei dian (黑點) "black spots" in both cities. The hei dian (黑點) "black spot" in Hong Kong carried much more risk that the one in Edmonton did, as there were confirmed cases of SARS in Hong Kong, but Chinese elders who continued to visit Edmonton's Chinatown regularly were careful when going to restaurants or grocery stores. They were more vigilant about people around them and left the premises immediately if they discovered that someone recently returned from Hong Kong had not fulfilled the isolation requirement before coming to Chinatown.

Not all places were deemed 'dangerous' by the Chinese elderly in Edmonton. They did not, for example, change their practice of going to church. Christians who went to the Chinese Baptist Church felt safe going there, as they all knew each other. They trusted that individuals who had visited Hong Kong or China during that time would have the moral sense and discipline to observe the 14-days isolation period prior to attending church services again. None missed going to church during the SARS period, they were not afraid of contracting SARS because Edmonton was clear of SARS. Two participants described this trust and lack of concerns about SARS:

> Well, going to the church I do not have to worry as there are posters up everywhere asking those who return from HK to stay away for at least 2 weeks. I am not afraid as I know these people and they are all very responsible and will not put others at risk.

> Everyone knows each other very well so there is trust and we all feel safe there [church]. If there are cases of SARS here like in Toronto, then it would be much concerns, the children [those living in Toronto] did not go to church when the situation was most serious because they were afraid that people coming back from HK and they do not know everyone and that makes it more worrisome.

Chinese elderly in Edmonton did not avoid all crowded places. The decision to visit these places depended on whether they knew the people who were there, but the main reason for the lack of avoidance was that Edmonton was free from SARS.

Isolation – the Most Effective Strategy against SARS

The Chinese elderly concurred that isolation was the best strategy against SARS. Furthermore, isolation could have either a mono or a dual purpose, depending on why an individual chose to use this strategy. Participants who were in Hong Kong and those in Edmonton used isolation for different purposes, so I will discuss them separately in the following section.

Isolation – Both a Mono- and a Dual-Purpose Strategy: Experiences of Chinese Elderly in Hong Kong

Chinese elderly who were visiting Hong Kong at the time of the SARS outbreak did not hesitate to use isolation to prevent exposure to the SARS virus. At the time, these participants were horrified at the onset of this mysterious disease. They were paralyzed by the devastating effect of SARS and were bombarded by unsettling news on a daily basis. These characteristics were sufficient to propel all of them to isolate themselves in their apartments during the SARS outbreak. Their experiences of fear forced them to isolate themselves from others, thus protecting themselves from SARS:

> I went to Hong Kong on March 4, after I arrived there for just a few days, SARS then occurred. I watched TV and I was very scared, very scared. I was staying at

> my son's place, I watched TV everyday and I was very scared and I did not dare to go out all. I could not do anything; I just stayed home because this was the best way not to get infected.

The participants who went to Hong Kong exercised self-imposed isolation at the beginning of the SARS epidemic because of fear, as little was known about the disease, especially with respect to the routes of transmission. The lack of information, together with the increasing number of health care workers infected, further justified the use of isolation:

> My most important and effective preventive strategy was to stay home as no one knew the cause of SARS at the time and more and more people were getting sick so I decided the best thing was to stay home and not went out. Well, you could say that I chose to stay home and not go out.

Participants exercised isolation with the sole purpose of protecting themselves against SARS while they were in Hong Kong. As they were afraid of contracting the disease, to them the best tactic was to stay in their homes, which they considered an environment free from the SARS virus. However, on their return to Canada, they underwent voluntary isolation for a minimum of 10 days. This isolation had the dual purpose of making sure that they were free of SARS but also that they did not spread the deadly disease to others. The intention of undergoing isolation on one's return from a SARS-infected country was solely to protect one's family and others from the disease. Capital Health recommended isolation for all individuals returning from SARS-infected countries, even though the individuals might be free of symptoms suggestive of SARS. These participants were very cooperative, because protecting the family and others was of utmost important to them, and they firmly believed that this was the right and moral thing to do. They concurred that they were not afraid of contracting SARS themselves but would not be able to live with themselves if they gave the disease to their family or others in the community. Therefore, they would do anything to minimize their chance of infecting others. The consequences of the rapid spread of SARS were in the minds of these Chinese elderly, and they demonstrated clearly their willingness to undergo isolation:

> I did not care about any other things once I arrived back here and the only thing is to isolate myself as I did not know whether I have SARS or not. I did not go out anywhere; I just stayed at home all day. If I need anything I just phoned my children and asked them to buy the things I need. When they bought it, they would phone me and I asked them to leave it outside my house and ring the door bell and that's all [laugh]. Well, I think it is the right thing to do because I do not want to hurt others.

Participants who returned from Hong Kong after the SARS had been declared under control and WHO lifted its travel advisory to the region still chose to keep their contacts with others to a minimum just to be sure that no one would be infected. They again and again stressed repeatedly that this was the right thing to do to keep SARS out of Canada:

> When I returned to Canada, it was already the end of July. Hong Kong had been declared SARS free by the WHO by then so I did not have to go into isolation for 2 weeks. I think it was a good thing that people coming from an infected country to isolate as I believe it was the only thing that would stop the spread of the disease. I would have no problem if I have to stay in a house and not see or do anything for 10-14 days if it was the only way to stop the spread of the disease. I think it was the right and good thing to do. I did not have to go through isolation but I did not see many people the first 10 days I came because I wanted to make sure I was free of SARS

Minimizing one's contacts with others was also recognized as an effective strategy for preventing the spread of disease. One participant, returning from Hong Kong at the end of May, requested that only her son meet her at the airport in Vancouver, and she did not visit with his family as originally planned. She could not wait to get back to Edmonton to start her isolation, even though it created discomfort for her:

> I have my youngest son here in Edmonton and my second son is in Vancouver. My son in Vancouver told us to come and stayed with them for two weeks after my return from HK on May 16. I told him no as I did not want to stay for 10 days in Vancouver and another 2 weeks in Edmonton in isolation. I did not know whether my husband or I was infected at the time and I did not want to take the chance of infecting my son and his family. I did not want to bother them as I need to be isolated so I went to Edmonton right away even though it was a bit more uncomfortable because I have to stay on the plane for an extra hour and start the isolation period for two weeks in our apartment immediately.

Participants who came back from Hong Kong went into isolation or minimized their contacts with others because they did not want to *hai ren* (害人) (harm people'). This was a selfless act, as they were all thinking of others and did not mind going through the inconvenience of staying indoors for at least 10 days. All of these participants received support either from their family or from others in the community while they were in isolation. The participants' family and friends played a key role in making sure that they did not have to venture out of their house for at least 2 weeks after their return by stocking up their fridge with food and made themselves available to run errands. There was still fear of spreading the SARS virus, even though these participants were in isolation, and all took extra precautions to make sure that they did not have contacts with anyone during the isolation period:

> I told my son when I was coming back so he bought a lot of food and put it in the fridge, I was not able to eat it all and they all went rotten. If my son had to work then my relatives bought the food for me. After they got the grocery they would phone, ring the door-bell and left the grocery outside my door. They told me to wait till they were gone before I went to pick it up [laugh]. I guessed they were scared of getting infected as SARS spread so quickly and I did not blame them. I think it was a good idea as well because I just did not want to take a chance of giving SARS to them.

> When I came back from HK, I was coughing a lot and I just took the cough syrup I brought back, I was taking cough syrup 1 tablespoon every 4 hours and took it 4 times day. I did not eat any meat and took only fish, vegetables and fruits and I asked my family to buy the food for me, I asked them to buy everything for me as I was in isolation.

One woman who lived with her daughter chose to stay in a motel on her return to Edmonton, as this would guarantee no chance of spreading SARS to her daughter and her young family. This participant wanted to alleviate her friends' fears by going into isolation, and she wanted to convince herself and others that she was absolutely SARS free:

> Well, I returned to Canada on May 28, I went through voluntary isolation because at that time Hong Kong was just taken off the travel advisory list. When I came back I stayed in a motel because I was not sure whether I had contracted it [SARS] or not, I was scared and worried, I did not want to spread it to other members of my family. So I decided to undergo voluntary isolation for about 10 days and stayed home for another 3 days before I dared to go out…However, I did not see my friends because they might be afraid as I just returned from Hong Kong.

The decision to isolate oneself upon one's return from a SARS infected area protected the individual's family. However, members of the motel's staff were theoretically at risk.

Isolation: Hard Time or Necessary Time

The experience of isolation varied among the participants, and not all found the time they spent in isolation easy. This difference in experiences might be related to when these participants returned from Canada. Those who returned in the spring and summer found it easier, as the weather is good and even though they could not go out but they could open windows for fresh air. One woman, who returned in March, when Edmonton is cold and the temperature is often below 0° C, described her time at home as hard, partly because she was recovering from a cold and was not able to open the window because of the cold weather:

> When I came home I isolated myself, I did not go out [laugh], I was basically trapped in the house, it was snowing in Edmonton by the time we came home and we did not dare to open the window or go out because it was so cold, and we were trapped inside all the time. My friend said I have to open the window a bit or else there will not be any air and I did not know whether to get mad or to laugh.

Another woman has great difficulty during the isolation period. She and her husband returned to Edmonton in May, when the weather was warm. However, this woman had arrived in Hong Kong only days before the SARS outbreak and had been confined to her son's apartment in Hong Kong for almost the entire duration of her stay. She was upset, as she had planned to visit her aging brothers and sisters in mainland China. The most difficult thing for her was not being able to get out of the apartment. It is important to note that this woman lives with her husband in an apartment in a apartment for Chinese elderly in Chinatown, and there was perhaps more pressure for her to stay indoors all the time, as the other residents were over age 65 and she was aware that they are more prone to the SARS virus. This woman is usually very active and she exercises regularly, so the 2 weeks spend in isolation deprived her of this opportunity. She stated that as a result of the stress, she lost a lot of weight over the 2 weeks:

> The two weeks of isolation was very, very *sin ku* (uncomfortable). I could not step out of the apartment at all, and when I need to put the garbage out I need to do it after midnight, when everyone is in bed before I could get rid of the garbage because I want to make sure no one was around when I went out. People were scared of us as well knowing that we just recently returned from Hong Kong I am used to exercise 4 days a week and I could not leave the apartment for two weeks after I came back so my heart was not very happy.

This same woman was thrilled when she was eventually permitted to leave her apartment after 2 weeks. To be absolutely sure that she has been in isolation for the required period, she phoned the school (this woman is taking English classes at a centre for multicultural services) and the management office of the apartment for Chinese elderly to verify that, indeed, she was safe to go out. She said,

> After two weeks I phoned the office and the school and asked if I can come out. I just want to make sure, just to make sure. I told them I returned from Hong Kong on May 16, and I phoned them at that time first of June, they calculated the date and said that I could get out. Wow, I was so happy!! Staying inside and isolation is very uncomfortable as you could not go out and not able to buy anything.

The other participants who went through isolation did not relate much difficulty. One woman who was sick prior to coming back to Edmonton took the advice of a *zhong yi* (中醫) ("traditional Chinese doctor") whom she saw in Hong Kong prior to her coming back to Edmonton to *bao shen* (保身) ("use specific kinds of food to increase the body's strength"). She went to see a physician trained in Western medicine and was assured that she only had a cold, this was to confirm that she had not contracted SARS prior to her return to Edmonton. Therefore, during the isolation period, she simply rested and made special food to make her body stronger.

> Well, I did not mind the time I spent in isolation as I was already sick and I just spent the time staying home and made special soups to bao shen (保身). The two weeks actually went by fairly quickly but of course it was nice to be able to get out after the two weeks were up. I felt much stronger as well after rested for two weeks. So, I think I have achieved things as I had a chance to rest and also do my duty to not spread SARS to the community.

These participants were all disciplined and made sure that the appropriate time for isolation was observed before leaving their apartment. However, there were also monitoring devices built in to ensure that they had observed the entire isolation period.

Monitoring Effort – Self, Family and Community

All the participants were aware that they needed to stay 10 to14 days in isolation prior to commencing their regular activities. Monitoring efforts on the part of the individual, the family, and the community ensured that the isolation was tightly enforced. As mentioned earlier, the participants who underwent isolation all kept track of the time they spent in isolation, and they phoned various organizations to make sure that it was safe for them to go out.

The participants in this study identified two additional levels of monitoring: church groups and community institutions such as the apartment for the Chinese elderly, the nursing home for elderly Chinese, and a center for multicultural services in Edmonton.

One man who lives in the apartment for the Chinese elderly said that the management did a wonderful job right at the beginning of the SARS epidemics and took all precautions to prevent the spread of disease, including monitoring all visitors, making certain that individuals returning from Hong Kong observe the isolation period, and ensuring that the lounges in the buildings and the elevators, including the doorknobs, were cleansed regularly with detergent:

> Yeah, the management knows. People are asked to isolate themselves for at least 10 days after returning from Hong Kong. Everyone knows each other and they will monitor and make sure people are isolated when they returned from HK and other areas that are infected with SARS. It is important as you do not want to spread germs to others and it is especially important here as people who live here are all elderly and their immune system is weaker than the young people. So, yes

> management keeps a lookout for everything, especially at the time when SARS was a real threat

The management staff at all institutions put out notices advising the residents that no one should allow unfamiliar people into the building and visitors that they should stop at the office prior to going into the apartment. This monitoring effort was done to ensure the safety of all the residents in the two buildings, and residents were happy that management took this step to ensure their safety:

> The management office advised that visitors who look unfamiliar should not be allowed into the building because everyone was scared of contracting SARS. No visitors were allowed during that time at all. If people came to visit, they need to stop at the management office and signed in, this is to keep track of who has been here I guess and now everything is back to normal as Hong Kong and Toronto are off the WHO lists.

> At the beginning of the SARS epidemics, the management team here was very nervous and the cleaning staffs were cleaning all the time – they clean the corridors and the grounds around the gardens at least twice a day. They would clean the inside of the apartment buildings especially the doors and inside the elevators.

This monitoring by the staff was especially stringent at the nursing home for Chinese elderly, where the residents depended entirely on the staff to ward off SARS. Visiting was kept to a minimum at the request of the manager and was totally discouraged at the onset of the SARS outbreak. The residents trusted the staff completely and were extremely cooperative:

> Yeah, people were discouraged to come to visit during the SARS outbreak. Visitation was kept to a minimal and if come to visit, you had to fill in forms to prove that you had not travel to Hong Kong, China or Toronto recently. Yes, they were very strict and this was good because the residents were not able to do that.

Chinese elders reported that their church took an active part in ensuring that individuals recently returned from Hong Kong or any other SARS-infected area stayed away. Notices were posted and distributed to all the churchgoers, so everyone was aware of the amount of time the individuals undergoing isolation needed to stay away. Family members often acted as gatekeepers and reminded the individual when it was time to participate in church services:

> The church has already advised everyone in advance about SARS and the isolation requirement if one returns from Hong Kong or any SARS infected countries…Of course not the whole family went to Hong Kong; so family members here will tell the individual to stay away for two weeks before the person can participate in church service again.
>
> Everyone at church helped in monitoring to make sure that people were staying away for at least 10-14 days after their return to Edmonton. We all know each other so it is no problem at all and people do not seem to be upset as it is for the good of the whole congregation.

In addition to observing the isolation period, many of which were self-imposed and voluntary, individuals in isolation needed to know when to seek medical help. The family, in this case, again acted as monitors to make sure no one developed signs and symptoms of SARS during the isolation period:

> I know there are people from the church who practise voluntary isolation when they return from Hong Kong. I know because I asked people when they returned from Hong Kong and they told me two weeks ago. The family members always reminded them. Family members who stayed with others who undergo voluntary isolation will also monitor their own health and seek medical help right away if symptoms of SARS arise. The main thing is to think of others first and consider others first. You need to know what to do.

Another man said that he knew of people from his church whose families asked them to move in with them after they returned from Hong Kong during the SARS scare. These individuals lived in the apartment for the Chinese elderly and did not want to put the other residents at risk because of their weaker immune system.

> There are a few people from church who went to Hong Kong for 6 months. When they returned, they did not go back to their own home as they are staying in the apartment for the Chinese elderly and they did not want to infect other.

The participants in this study all agreed that isolation was an essential and effective strategy against SARS. The individual, the family, and the community all took the responsibility for making sure that the isolation process went smoothly. No one complained about having to go into isolation, because everyone believed that it was necessary and was for the good of the family and the community. In addition, it was the right and moral thing to do.

Putting Oneself in the Best Position to Combat SARS

The participants in this study were aware of the high mortality rate from SARS for individuals over the age of 65. They did not seem surprised, and all asserted that they expected this high percentage, because the immune system deteriorates with age. Therefore, an important strategy against SARS would be to increase one's immunity so that a person would stand a better chance of fighting the disease if he or she contracted it.

One of the key methods of building up one's immune system is to ensure adequate nutrition. The participants in this study concurred that if a person pays attention to what he or she eats, then his or her body should be strong enough and have a better chance to fight any diseases. The participants believed that when a person gets older, the digestive system also does not work as well as before, and so it is important to cut down on food consumption. There are also suggestions that as a person gets older, he or she should increase consumption of vegetables and fruits and decrease consumption of meat.

The secret to building up one's immune system is to maintain a balanced diet that includes the major food groups:

> As far as eating is concerned, it needs to be balanced, ah vegetables, meat and protein and every nutrients need to be balanced and the immune system will be better and one will be less likely to get sick. One need to make sure to take everything but in small portion as the old people do not need to take in too much; the digestive system is not as strong so we need to cut down but still take everything.

Participants also considered it important to make sure that the vegetables are not overcooked, as the nutrients will all be destroyed:

> It is important not to cook the vegetables for too long and it is better for the health as the nutrition is better. Therefore, it is not only important to eat all different types of food but only in moderation but one needs to makes sure not to over cook the food especially the vegetables so that the nutrients are all kept in.

Some participants in the study stressed the need to pay extra attention in the preparation of food prior to cooking. One woman told of her practice of soaking vegetables in a sink full of water prior to cooking to rid them of the pesticides, a habit she had started when she was in Hong Kong and continued in Edmonton. She was comfortable with the practice, as it gave her '*si an le t'i* (心安理得) (peace of mind). She said,

> Like the vegetables, the fish sometimes I rinse it many, many times and I steam it thoroughly. For the vegetables, I soaked them in water to rid of the pesticides when I was in HK; I still soak them now here. I spread out the leaves and soak it well in advance. I think it is a good habit so I continue. It is a bit more work but I have get used to it already so I continue to do it. This will give you si an li ti la(心安理得啦) [giving one the peace of mind].

Making sure one's diet is balanced is important to maintaining health; none of the participants in this study disagreed with this. In addition to a balanced diet, some participants also argued the need to take on a special kind of food base at different times and seasons of the year. This type of food therapy is common among Chinese elderly, and homemade soups appear to be the most popular. In certain cases, homemade soup is served at every meal, or an effort will be made to have it served. Elderly Chinese who cooked for their families stated they made soup daily believing that drinking soups made from different types of simple herbs, vegetables, and meat helps to keep the body strong:

> I often boil soups using some of these common herbs already as my son likes to drink home made soup and I think it helps to keep the body healthy as well. If he comes home for supper I will make soup for dinner for sure. Perhaps, eating right with more *tang shui* (湯水) [soup water] keep us healthy.
>
> We have soup on a daily basis; we have to have soup with the meal. We do not make special soups just simple ones and I believe the regular consumption of soups make us healthy. The children enjoy the soups as well.

The majority of the Chinese elderly in the study made homemade soups for themselves and for their families using commonly known herbs and roots. Many stressed that they did not have the knowledge to use special herbs to bao shen(保身) (mending the body, thus making the body strong again). These participants claimed to have only basic knowledge of balancing the heat and cold within the body, the principle the participants used to make special kinds of food for each of the different seasons:

> Well, I do not really made what you would call special soups. Like I make soup with *wai san* (淮山) [a Chinese herb], almond, 'gourd' [a Chinese vegetable] and sea weed together with lean pork. The only thing we boil if there is extra heat in the body is to make soup with this type of gourd [show vegetables to interviewer], do you make this soup as well? This is to clear the excess heat in the liver; you boil it with lean pork. So, I believe you can keep yourself healthy if you drink and eat properly.

Participants who lived alone or with their families all stated they had homemade soup daily, usually at supper. Those who lived in the nursing home for Chinese elderly also had soup freshly made on a daily basis, served at lunch and again at supper. The types of soup served at the nursing home change according to the seasons as well. Many participants felt that having soups regularly strengthens the body but also prevents illness. During the SARS epidemics in particular, some participants boiled *liang tang* (涼湯) (soups that are 'cold' in nature) or *liang shui* (涼水) ('cold' tea, brewed using specific herbs, that can be bought over the counter in Chinese herb store or grocery stores in Chinatown) more often. These common herbs are used extensively, and the knowledge is handed down from mothers to daughters. The following quotation illustrates:

> Well, during the SARS epidemic, I boiled *jin gan fa* (金銀花) [a Chinese herb that aims at clearing the heat in the body, considered 'cool' in nature] and boiled liang soups, like soups make from *fan guo* [a type of Chinese gourd] and lentils regularly and I think it is also an effective preventive way against SARS as well people told me…Well, these soups aim to rid of the heat and rid of the poison inside the body like green bean. I would also boil the green bean soup dessert during the summer.

During the SARS epidemics, special recipes for soups and drinks that protected against SARS were published in the Chinese community newspapers Ming Bao (明報) and Sing Dao Ri Bao (星島日報). There were numerous recipes, but the key ingredient is an herb known as ban lan gen (板藍根) (*Isatis indigotica*), and at the peak of the epidemics, this herb was completely sold out in Hong Kong. In Edmonton, soups and teas for the prevention of SARS were prepackaged and sold in the big Chinese herb stores. Packages were divided into age groups, as the dosages of the herbs are adjusted according to one's age. However, none of the participants living in Edmonton at the time of the SARS outbreak made or consumed any of the herbal drinks, unlike those who were in Hong Kong during the epidemics. There are two reasons for this difference. First, the most important proponent for the use of Chinese herbs in preventing SARS was the lead taken by the Chinese University of Hong Kong in distributing packages of Chinese medicines to the frontline health workers working at the Prince of Wales Hospital (Professor P.C. Leung, personal communication, May 6, 2004). This action increased the public confidence in the use of Chinese herbs against SARS. After the news media reported the use of Chinese herbs for the prevention of SARS, the Chinese University received many calls requesting the herbs, but the University was unable to supply the public due to a lack of resources. The task was later taken up by YYS, which is a well-known and reputable Chinese herb store in Hong Kong (Professor P. C. Leung, personal communication, May 9, 2004). The second reason has to do with the mortality rate of SARS. It was reported that the mortality rate of SARS was lower in China than that of Hong Kong. It was speculated that using a combination of Western and traditional Chinese medicines to treat patients with SARS might, in fact, increases the survival rate of the patients; even without evidence supporting this claim, there was a mad rush for ban lan gen (板藍根) (*Isatis indigotica*) and other ingredients used in the prevention of SARS. A third reason is there was no definitive treatment for SARS, and so people thought it best to do everything they could to prevent SARS. Taking the herbs seemed to be the least invasive form of prevention, and many participants were familiar with the herbs used in the different recipes, thus increasing their trust in them.

It is important to note that Chinese elderly were already making special tonics for the prevention of minor ailments. They all have knowledge of the use of simple herbs to combat either excessive or lack of "heat" in the body. Chinese elderly who were in Hong Kong at the peak of the SARS epidemics reported the use of Chinese herb drinks for SARS prevention specifically:

> I did not know but I know many people took the herbal tea for preventing SARS; they boiled the herbs to drink. I also boiled and included the Philippine maid; everyone drank it and the friends of my daughter. Everyone drank as the other might infect you, they said it was for prevention… People said they were good so I boiled them to drink, I asked the zhong yi (中醫) [traditional Chinese doctor] and he said it was OK. The herbs were only for *qing re* (清熱) [clearing the lungs of heat] and there should not be any problem. It was only a one-time thing but don't know whether it was helpful but did not hurt to drink it people said. They said it was *qing liang* (清涼) ['clear and cool' – for ensuring that the lungs are not overheated], so we drank it, not much concern there.

The media played a role in distributing information regarding SARS prevention, and all individuals, regardless of whether they were in Hong Kong or in Edmonton, were aware of the availability of herb tea in the fight against SARS. Several Chinese pharmaceutical companies in China advertised their products in the community newspapers, saying that the medicines are effective against SARS (Canadian Chinese Times, 2003; Edmonton Chinese Times, 2003).

During the peak of the infection, no one was going to restaurants for dim sum. When the infection was under control and people started to go out again, the Chinese restaurants took many precautions against SARS, including providing a special tea for their patrons. This was to boost the confidence of the customers:

> When I was in Hong Kong and we went to yin cha (飲茶) ['drink tea,' another term for dim sum] when SARS was under control, they gave us a cup of herbal

> tea free of charge the moment we sat down at the table. The waiter bought us each a cup of *kǔ cha* (苦茶)["bitter tea"] he called it and said that it was for preventing SARS, they gave them to us free of charge. Yeah, we all drank it.

In fact, not all participants drank ban lan gen (板藍根) (*Isatis indigotica).* One woman said she had heard of the herb, as it was widely recommended in the newspapers and her friends. She did not take it, however, as she was already taking other kinds of herbs that also have a 'cooling effect'; she did not think she needed to take ban lan gen (板藍根) (*Isatis indigotica*) believing that taking some kind of 'cool drink' was sufficient:

> Well, we already drink teas such as sugar cane, *mua gen* (茅根) [a 'cold' Chinese herb] but I have never tried bai lan gen (板藍根) (*Isatis indigotica).* The Chinese herbalist in Hong Kong recommended this herb to me, I heard of this by reading the newspaper and talking to others. I thought I was already taking the liang cha 涼茶) ['cold tea'] and that should be enough.

Participants living in Edmonton were also aware of bai lam gen (板藍根) (*Isatis indigotica*) because it was written up and advertised extensively in the community newspapers. However, none of them took the special tea for SARS prevention, because there were no confirmed cases of SARS there, and no one felt at the time that it was necessary. In addition, all the participants were consuming homemade soups regularly, and they felt that was sufficient to boost their immune system against SARS. The nature of ban lan gen (板藍根) (*Isatis indigotica*) is extremely *liang* (涼) ('cool'), so it is not suitable for everyone. An individual's body might not be able to tolerate the effect of the herbs; in this situation, the herb will cause damage rather than helping the person. The participants in this study all emphasized importance of 'knowing' one's body constituents, and they seemed knowledgeable about the appropriate use of herbs. Nevertheless, practitioners of TCM in Edmonton informed me that during the SARS outbreak, people were buying herbs, including ban lan gen (板藍根) (*Isatis indigotica*), to make tonics to prevent getting SARS.

The decision whether to use ban lan gen (板藍根) (*Isatis indigotica*)depended primarily on the individual's perceived risk of SARS infection, which was related to his or her proximity to the infected area. Taking in the right kind of food is necessary, but to stay healthy, a person also needs enough rest and regular exercise. The participants all knew that exercises that are gentle on the joints are good for the elderly; they were also aware that walking for an hour on a treadmill or walking outside every day is good exercise for keeping an individual active:

> I also exercise everyday even before I get out of bed. That is my routine so I will be sure that the exercise is done first thing in the morning.

Many of the participants engaged in some kind of exercise, including swimming, tai chi, and non-impact exercise. Engaging in any kind of gentle form of exercise and making sure to eat nutritious foods were common practices among participants in this study. Some asserted that it is helpful to follow an exercise schedule to ensure that time is allocated for the activities. They stressed the importance of discipline in doing exercises that are suitable for the individual.

> I go swimming every day with my neighbors. We start at 06:30 in the morning and will come home around 10:00. I have been doing this for the past 5 years and I feel great. It is necessary for me to have a schedule, some kind of routine.

All of the participants in this study agreed that there was a need to initiate preventive strategies against SARS because it is a life-threatening disease with no definitive treatment. I have discussed previously how the Chinese elderly chose to initiate strategies to protect themselves and, in the process, their families and the community at large. The term *wai ren, wai ji* (爲人爲己) was prominent within study transcripts, and it was the main factor propelling the Chinese elders to use protective strategies against SARS.

'Wai Ren, Wai Ji and Wai Ji, Wai ren' (爲人爲己和 爲己爲人)

'For Others and Self' and 'For Self and Others'

Chinese elderly in the study stated that they were not afraid to die, because they had lived a long and fruitful life. They were not afraid of contracting SARS, but they were fearful of spreading the extremely contagious disease to their family and the community. All the participants initiated strategies against SARS when increasing numbers of people became infected in Hong Kong. The Chinese elderly stated that they initiated the different strategies to protect themselves from getting SARS, but those who lived either with children and grandchildren or in the apartment for the elderly Chinese or the nursing home for Chinese elderly stated they had their family and the community in mind when they started the protective strategies. In particular, all agreed that isolation was the only way to guarantee not spreading the SARS virus to one's family or to the community. The 4 women who were in Hong Kong at the peak of the SARS epidemics expressed this feeling strongly. On their return, they went into isolation for 10 to14 days to make sure they did not have the disease and spread it to others. They felt a moral duty to cut down on their chances of being infected by SARS, and this duty to protect themselves, their family, and the community began when they stepped on the plane bound for Canada. These women used a combination of strategies to ensure maximum protection against SARS, including wearing a mask during the trip home, sitting apart from others on the plane (a sort of limited isolation on the plane), avoiding others after landing at the airport, not stopping over to visit family en route to Edmonton, and going into isolation immediately on arrival at Edmonton. These strategies were all put in place to assure the participants further that they had minimized their chances of exposure to the SARS, especially as there was news of individuals' being infected on a plane:

> I wore the simple mask…Yes, yes I think the common mask is effective as when you coughed you would be less frightened as it would prevent droplets going to others, so if others were around you while you coughed they are not as scared. So wearing a mask is to protect yourself from others and protecting others from you as well. Yeah. wai ren, wai ji (爲人爲己). I do not care what people think of me, as I just want to make sure that I do not spread SARS to others if I am infected. I think it is the right and moral thing to do because I would not like to be the one to spread the disease to Canada.

Another woman who had returned from Hong Kong stated that the plane was not full, but everyone aboard wore a mask. The airline had recommended this, and no one wants to spread SARS to others, as people have to think of others as well as themselves:

> Well, I had a mask on all this time and everyone had one on the plane. I guess we were not sure who is infected with SARS on the plane so everyone was wearing a mask to protect themselves because they were scared. I guess like me, everyone on the plane took the necessary step to make sure that their family would not be infected if they happened to get exposed to SARS on the plane so all of us were wearing masks to protect ourselves and besides it was recommended as well by the airline workers. You must think of others, wai ji (爲己)and wai ren(爲人) is as simple as that.

The Chinese elderly agreed that different types of strategies against SARS were all necessary to protect themselves and others. To the Chinese elderly, it was expected of them that they would do their best to protect others from harm. One respondent illustrated this nicely:

> I think isolation is good, some people said it is not good but it is essential because you do not know who has the germs when coming back on the plane; you do not know who has the germs. You need to wai ji wai ren (爲己爲人), which is very good, you need to think of others and the community while thinking yourself at the same time. I think this is an excellent idea to isolate before you return to the community.

The strategies initiated by the participants against SARS were to ensure that no disease would be spread to others. To many, this is an issue of morality and is the right thing to do, as the consequences of spreading the disease are grave, and no one is willing to take the responsibility *to hai ren* (害人) (‘harm people’). Thus, strategies such as isolation and keeping the environment clean by not throwing garbage on the street or spitting all aim to protect the community, as the consequences of such actions would affect more people than only the individuals and their immediately families. In this situation, the term wai ren,wai ji (爲人爲己) (‘for others and for self’) was used. Other strategies, such as staying away from crowded places, making sure one’s nutritional intake is adequate, and cleaning the house will benefit oneself immediately so the term wai ji, wai ren (爲己爲人) (‘for self and for others’) was used. The end product of a person’s action, whether he or she is thinking of self or the community first, is not important, as this belief is grounded in the moral expectation of being a good citizen, so that people are expect to do their share and their best in the fight against SARS. Perhaps, the two types of strategies could be differentiated into those that are visible to others (e.g., wearing a mask, not throwing garbage or spitting, and isolation) and strategies that are less visible, involving mainly the individuals (e.g., cleaning one's house, cooking nutritious meals, and avoiding crowded places). Nonetheless, all of these actions have one goal: to prevent SARS, thereby protecting the individual and the community.

Chinese elders in this study initiated strategies against the deadly disease, but there were still individuals who believed that SARS is *fang bu sheng fang* (防不勝防) ("unpredictable and not preventable"). These individuals believed that SARS is not preventable, because nurses and doctors were being infected in large numbers even though they were well protected. Some considered the SARS outbreak as unavoidable and classed it as a form of *tian yi* (天意) ('the Will of Heaven'). In this case, individuals link SARS with earthquakes, floods, a major plane crash, and other events that affect a large number of people. Even though these participants felt that SARS is unavoidable; however, this did not indicate a lack of willingness on their part to use protective strategies. These participants all stated that even though SARS is not preventable, a person still needs to do his or her best to ensure protection against it. Therefore, they remained proactive and took an active part in all strategies recommended by the Department of Health in Hong Kong, although there was a strong inclination to leave it to fate:

> Wearing a mask may be helpful and it is mainly for the peace of the mind and the most important thing is to make sure that one's body is strong enough to fight off the disease. One still has to try to do one's best even though the disease is not avoidable. If one get the disease then it is *very dao mei* (倒霉) ['unlucky'] and perhaps it is meant to be.

An elderly woman expressed her belief that the preventive strategies for SARS are effective and that one should try to avoid contracting the disease by initiating protective strategies. If a person still contracts the disease, according to this woman, he or she will need to *yuan qian sheng* (怨前世) ('blame one's previous life') or *yuan ming* (怨命) ('blame one's life'). Her inability to explain why individuals such as the health care professionals contracted SARS even though they observed all necessary precautions led her to believe that SARS is not preventable and one has to accept that this is tian yi (天意) ('the Will of Heaven') and that human beings are not able to change what is being planned or destined for their life. There was a sense of powerlessness over the issue of death, and many were saddened by the death of young health care professionals:

> One has to do everything to avoid SARS and if one gets it then it is *mo bai fat* ['no other way']. Like you have to yuan ming (怨命) or yuan qain sheng (怨前世) ['blaming one's previous life']. Like those who contracted SARS and lost their life, they need to blame their lives….This is tian yi (天意) ['the Will of Heaven'] and no one could change it, no one.

Another man echoed a similar sentiment about the loss of young health care professionals to SARS but quickly pointed out that it is tian yi (天意) ('the Will of Heaven') and that it is impossible for anyone to go against the will of Heaven, which decides a person's in life. He was implying, again, that SARS is not preventable and that it is impossible to control what is going to happen to an individual:

> With SARS, we are not afraid and we felt very bad for the health care professionals that contracted SARS, we felt sorry for them; this is tian yi (天意) ['the Will of Heaven']….It is better if you take care of your hygienic practices but sometimes it is not for you to control.

In response to the idea that SARS is unpreventable, unavoidable, and an extremely serious disease, the participants tried to explain the unfortunate incident of contracting SARS as a predestined or preordained plan from tian (天) [literally 'the sky,' but generally referring to a higher power that is beyond the comprehension of the human mind]. This starts the fourth stage, when the participants began to seek comfort and extra protection from a higher power.

Stage 4: Resorting to Higher Power for Comfort and Extra Protection: Learning to Accept One's Fate

During this stage, the Chinese elderly felt that they had done everything in their power to avoid contracting SARS but were aware that there was still a possibility of contracting the deadly disease. For their peace of mind, individuals started to pray to *Huang Da Xian* (黃大仙) (a Chinese deity popular in Hong Kong, where there is a temple built and dedicated in his honor for protection.) Others believed that this is purely superstition:

> This is ah useless, praying to Huang Da Xian (黃大仙); this is entirely superstition. I have no religion and I only believe in myself. I think people may feel better by praying to any *sheng* (神) ['deities'] or Huang Da Xian (黃大仙), it is OK because they are scared so they just want to make sure that they have asked for help and protection from someone who is more powerful than they are.

Chinese elders who subscribe to the Christian religion all felt that it is acceptable to pray to a higher power for protection. In particular, they turned to *Zhu* (主) ("Christ") for assurance. These elders felt that they were very lucky that they had not contracted SARS and trusted that they would not have problems with the disease because they have faith in Zhu (主):

> Although I saw many people going through this tragedy, I have been lucky and have to thank sheng (神) ['spiritual being'], I believe in Zhu (主)['Christ'] and I was fine during the whole episode, I was fine. I trust Zhu completely and he will take care of my family and I, I just know I will be fine.

These same elders trusted that they would not contract SARS because they believe in Zhu (主) but also stated that if they contracted SARS, Christ would help them through; even so, they still needed to do their part in the prevention of the disease:

> Savior, Christ is the one who saves those who believe in him. [Pause] The members of our church would trust and believe in him. So, I believe that if I get SARS that the Lord will help me go through the crisis but it does not mean that I am protected from getting SARS, one still needs to do the best to avoid being infected in the first place.

One elderly woman, a recent convert to the Christian faith pointed out that she used to go *bai sheng* (拜神) before she believed in Zhu (主). She raised the point that people usually flock to the temples and pray to Huang Da Xian (黃大仙) if there is a crisis, but after the crisis subsides, people no longer remember to go to the temple. Therefore, going to temple is in response to intense fear at the time of a crisis, and she fully comprehended why people go and pray to the higher power when they are afraid. People just want to have the peace of mind and to convince themselves that they have covered all possibilities:

> Some people will bai sheng (拜神) ['praying to the deity and burn incense in a temple'] and asked for the ashes from the incense to make tea to drink at home if they have a certain illness, and people will ask for this and they will ask for that…I guess people are afraid of SARS so they figured going bai sheng (拜神) will not hurt and it is only for their own minds that they had done something.

The same woman said that now she believes in Zhu (主) and trusts that Zhu (主)will protect her and her family from harm. She still prays that the higher power will keep an eye on her and protect her from SARS but stresses the importance of doing one's share in preventing contracting SARS as well:

> Now I believed in Zhu (主) ["Christ"] and would not believe in sheng (神) ['spirits']anymore. Before, the ashes from the incense made the place very dirty and I do not bai shen(拜神) any more now, ha now it is *an an le le* (安安樂樂) ['not a worry in the world']. If anything goes wrong I would leave it to Zhu now, depend on ah Zhu (主), what can one do, depend on sheng (神) [meaning, in this case, 'Christ'] and what else can you do?

Therefore, participants in this study all agreed that everyone should adhere to the recommendations of the Department of Health to protect themselves from SARS. Because the consequences of the disease are extremely serious, some have also decided to take refuge in a higher power to provide them with comfort and strength to face mishap if they contract the deadly disease.

Fatalism and SARS

All of the Chinese elderly in this study were aware of the grave consequence of the disease of contracting SARS. Participants with religion and without concurred that people must trust in their fate, whether or not they would survive SARS if they contracted it. The term *dai ming* (大命) (literally 'big life') means that a person is extremely lucky and could escape big accidents or other tragedies; if a person dies, then he or she is *dao me* (倒霉) ('very unlucky'):

> But if you really contracted the disease, you can only consider yourself dao mei (倒霉) [very unlucky]. However, if you are dai ming (大命) ['big life'], then you will be cured of the disease.

The Chinese elders also believed that if an individual has done nothing wrong against others, he or she should not be afraid of anything. He or she trusts that there is justice in this world and that doing good deeds will bring rewards of good health and good fortune:

> Em, you believe in yourself and you trusted that you have not done anything in your life to hurt others. Like, if you do not do anything bad in your life, "*ren*

> *sheng bu chu kui xin shi, ban ya how men ya bu ching*"(人生不做虧心事,半夜敲門也不驚)['if one does not do anything against your heart then one should not be afraid if someone knocks at your door in the middle of the night'], nothing should happen to you because you have not done any harm to others and you have a clear conscience.

Another man states that he believes in *ming wen* (命運) ('one's destiny'), which decides the fate of the individual; things are predestined to happen in a certain way, and no one has control over it. Therefore, individuals who believe in ming wen (命運) accept their bad and good experiences without much difficulty, because things happen because they are meant to happen, and no one can explain and or comprehend:

> In Hong Kong, it appears that most who died from SARS were the elderly and the younger people contracted it through direct contact like the health care professionals. So, this is about ming wen (命運) ['one's destiny'], whether you believe or *not* ming wen (命運) has its own arrangement. It is not possible for human to understand the tragedy…but people must learn to accept what had happened and move on, it is difficult to make sense, people would just say if bad things happen to decent people, why? No one knows it is the person's ming wen (命運).

This elderly man believed in ming wen (命運) [one's destiny] because of his own luck and destiny, as he had been meant to die years ago from an incurable ailment. He had sought medical help without any results but was finally cured by a *mau shan* (茅山) ('shaman') using a *fu* (符) ['object that has power to protect one from misfortune or to cure someone of an incurable disease]; because he was not meant to die, it was destined that he meet this mau shan (茅山). He was lucky that he was cured and had lived to 85. He concluded that his wen shu (運數) ('luck') is good, as he had lived with the ailment for 10 years and had given up hope of finding a cure and leading a normal life:

> *Wen Shu* (運數) ['luck'] is very important, I am very lucky all my life, I have never met obstacles that I cannot handle. If you don't have a bit of luck, I should have died a long time ago.

Fatalism could explain the seemingly unexplainable to the Chinese elderly, as many did not understand why young people and so many health care professionals succumbed to the disease. Some participants think that SARS is unpreventable, and that the reason one contracts the disease is bad luck, and that it is meant to be so. Similarly, whether an individual survives the illness will depend on his or her luck and fate. Fatalism, what is written in the stars, might therefore be used to explain what happens to an individual, to explain the unexplainable, and perhaps help these Chinese elderly cope in difficult times:

> I believe in my fate and believe in myself. If I get it, it is unlucky for me. People who do not get the disease are lucky and those who get that will be not lucky. Simple, it all depends on your *wen shu* (運數) ['luck'] and destiny. I do not think you can change what is plan for you.

One woman explained that bad luck plays a role in deciding whether a person contracts SARS. She argued that people have to reflect on whether they have done something bad in their previous life if awful things start to happen to them or to members of their family. Terrible things can take the form of an acute illness, an accident, or an untimely death, especially in the young. The term yuan ming (怨命) means 'blaming life,' usually one's past life. Thus, some Chinese elders reflected on their lives and tried to place blame on individuals' previous lives to explain what was happening to them:

> Yeah, don't know what one has done in the last life, so yuan ming (怨命) ['blaming one's life']. Yeah, so I think that sometimes one cannot understand why

> one gets the bad luck and contracted this terrible disease like SARS. Perhaps this is what it meant to happen and nothing will prevent it from happening.

This particular patient has chronic renal failure requiring hemodialysis three times a week. In addition, she has a left below-knee amputation, and she blamed her misfortune on her previous life. This concept leads people to do kind deeds in this life to ensure that they will not have to suffer any hardships in their next life.

One might associate doing good deeds for the sake of ensuring a better life with Eastern religions, such as Buddhism or Taoism, but in fact, many of these participants were declared Christians. However, some were Buddhists, and others had subscribed to praying to a Chinese deity such as Huang Da Xian (黃大仙) before their conversion to Christianity. Religion also plays a role in helping the participants cope with SARS. One man, a converted Christian since he came to Canada, stated he used to bai sheng (拜神) in the temple; his father had introduced him to the practice, but he has since refuted it after finding Christ. Believing in Zhu(主) ['Christ'] gave him trust and confidence that he would have the courage to overcome any adverse conditions:

> If you believe in sheng (神)['spiritual being'], if you put sheng (神) in the centre of everything that happens to you. You will be fine and sheng (神) will look after you. You need to think about sheng (神) before you do anything. You have put your trust in sheng (神) so I do not need to be scared and I have the courage to fight any diseases.

Chinese elders claimed that having a belief and religion provided them with confidence and a peace of mind. Such a belief was valuable in times of uncertainty and provided the elders with comfort that things would work out and be fine. One man made it clear when he said he does not pray to *sheng* (神) that he will not get SARS; this would be not be feasible. However, he trusted that sheng (神)would give him guidance in times of hardships and see him through. He said,

> I cannot say that it prevents me from getting SARS. Perhaps I can contract it but I know *sheng* (神) will guide me and protect me, and I will get through it and have this kind of confidence.

There is no guarantee that believing in sheng (神)will help an individual to get out of a grave situation. People must do their part by seeking treatment if they contract SARS; and if the treatment fails, then they must accept death, because everyone will die one day. Individuals should not worry excessively but, rather, accept the situation. There was a sense among participants that one must do one's best, and everything would be up to a higher power:

> If you are dao mei (倒霉) ['unlucky'] and got the disease then one must actively seek treatment for it to get better, find out more methods to treat it and hope to get well and if there are no methods then you need to say that you believe in Zhu (主) ['Christ'], right?

This further support the findings, which suggest that regardless of whether a person has religious belief, he or she still has to do his or her duty to try to avoid and prevent getting SARS, even though some think that the disease is not preventable. All the participants in the study agreed that individuals must remain moral and not spread SARS if there is any possibility that they have been infected or exposed to the deadly virus:

> Well, this person is right to go on isolation when she returned from Hong Kong because she does not want to *lei ren* (累人) ['pull people down the same path, in this case spreading the disease to others']....Supposedly that's what people should do, if I know I might have some kind of infectious disease, I would not infect you, this is the way to live as a human and it is moral expectation that I take precaution to protect others from getting the disease.

The Chinese elders in this study clearly expressed the idea that one has a duty not to harm or bring harm to others. The need to do good for others and the community was the main factor leading individuals returning from Hong Kong to observe the recommendation to isolation for 10 days on their return. There was a sense of responsibility that one has to observe to protect the community:

> Well, for those people just returning from HK, they should isolate at home and will not go out for 2 weeks, not going out and stay in. Well, I think people are generally good and responsible and they do not want others to contract the disease so they will voluntarily isolate themselves for the good of the community.

It is evident that during this stage, all the participants were doing their share to prevent contracting SARS, whether they believed that the disease is preventable or not. Participants who had a religious belief, in addition to carrying out their preventive strategies, also trusted that sheng (神)or Zhu(主) would protect them in some way. Furthermore, if they were unlucky enough to contract the disease, they trusted that the higher power would give them strength and that they would survive the illness. Ming won (命運), fatalism, and wen shu (運數)are all related beliefs that an individual uses to explain why a person contracts or escapes from SARS. Doing good deeds, which builds up credits in one's life, is an important preparation for a better next life, but it is the decent, moral, and right thing to do when one tries one's best to protect the community from SARS.

Stage 5: Maintaining Vigilance: Remaining Poised for the Possible Recurrence of SARS

This final stage of the model signifies the participants' attempt to normalize their life after the SARS outbreak. This stage was especially significant and important for those participants who were in Hong Kong during the SARS epidemics, as they experienced the threat of contracting SARS up front. They were relieved to arrive back in Canada, and all were ready and eager to return to their normal lifestyle in Edmonton. This stage began when SARS was under control, with its rate starting to decline in both Hong Kong and Canada and no new cases being diagnosed. The threat of SARS was no longer imminent, the fear experienced by the participants at the onset on the epidemics was now slowly being loosened, and the participants resumed their lives as before. However, they were still afraid that SARS might return next year, and for participants who went to Hong Kong during the SARS outbreak, their experience of living under the grip of SARS was ingrained deeply in their minds, and they had plans that they would initiate if the disease returned in the future.

Maintaining Strategies in the Absence of the Threat Posed by SARS

Many participants agreed that even though SARS was no longer a threat and the disease was under control at the time of the interview, they would continue with some of the strategies that they had initiated during the height of the SARS infection. The Chinese elderly in this study considered these strategies good practice for maintaining personal hygiene and to keep themselves and their family healthy.

> WHO has removed HK from its list of infected area, people still recommended that if you go to places where there are not too many people, one needs not to wear a mask but there are others who say that if one has a cold or flu then you need to wear a mask again. I think these are good practices that people should continue after SARS, I know I will continue because it will benefit myself and others as well.

Chinese elders who were in Hong Kong at the time of the outbreak suffered much stress and were happy to return to Canada. The preventive strategies against SARS in

Hong Kong were more rigorous than those recommended in Canada, requiring residents to pour bleach into sinks and all drainage pipes. These elderly participants felt that this is a good practice and indicated that they would continue to use bleach for cleaning on their return to Edmonton. This might be related to fear of disease or the fact hat they had witnesses firsthand the severe consequences of SARS on the people in Hong Kong:

> I continue to pour bleach into the kitchen sink for disinfectant after I came back. I think it is a good idea to keep it clean and to kill germs as you just do not know. I feel that it is good so I continue to do it now. I do not do it every day like I did in Hong Kong, just once a week here, it's enough, it's enough, I think.
>
> I think it is more important to be safe, I am used to all the cleaning routine when I was in Hong Kong. So I am going to continue here in Edmonton. I think these are good for us.

The elderly participants stated they were gradually getting back to normal and felt happier now returning to Edmonton. One woman resumed her yum cha practice for the sake of her husband, who enjoys going to a restaurant once a week, but now paid more attention to making sure that the utensils used for eating were clean. This is in relation to the outbreak of SARS, when she started taking the extra precaution. The use of hot water to rinse the bowls, cups, and chopsticks prior to eating in a restaurant remained a common practice to all the participants in this study as a way of minimizing the chance of infection. This signifies that the Chinese elderly were still afraid of getting sick and tried to decrease the likelihood of it, but they also attempted to maintain their schedule, not avoiding going to restaurants as they had during the peak of the SARS infection:

> Everything is back to normal. I went to yum cha once a week. I rinsed all the cups and bowls with hot water. He said that he likes to see others and so I let him go. So, we go once a week to the restaurant to eat and that was what we have done before the SARS outbreak.

> Before, I never wash the cups, bowls and chopsticks when we went to yum cha, now I rinsed them with hot water to make sure they are clean, I guess this does not hurt others. I do that in Hong Kong so I will start doing it here now. There are many people who are doing that in restaurants now after the SARS thing.

Even though life was beginning to get back to normal, the Chinese elderly had established certain changes to their routine because of the SARS outbreak. They had become more conscientious of cleanliness and had adopted the recommendations of the Health Department for the prevention of SARS.

One elderly man argued that even though SARS was under control now, individuals should not let their guard down, and people should continue to be vigilant to ensure that the disease does not return. This man pointed out the importance of maintaining hygiene, which is essential to keeping one healthy, and he felt that the level of awareness of keeping the public places clean was higher after the SARS epidemics:

> However, it is important to pay attention to the sanitation regardless of whether SARS is under control or not. I do not think it is a good thing to ignore once things are under control. Especially, if one keeps the place clean it's good for one's health and is good for everyone as well. For the public places, one needs to be careful and considerate and keep the place clean.
>
> One needs to be clean all year round and this will decrease the chances of getting infected. You do not know who returned from Hong Kong recently, therefore it is difficult to prevent SARS unless you say at home all the time and this will not be practical. Now that everything has calm down but one still needs to continue to pay care to cleanliness, then I do not think it is much of a problem of SARS. Individuals who had family members in Hong Kong monitored the situation

All the participants agreed that it is the individual's responsibility to keep his or her house and the public places clean, and that care for the community should continue with or without the threat of SARS or other infectious disease. Individuals should learn from the experience and not forget and let things slide, even if the threat no longer exists:

> I think everyone should continue to be clean and make sure the public areas are kept clean by not throwing garbage into the street and spitting as these will certainly spread diseases around. One needs to think of the community and to make sure that the best is done for oneself and others at the same time.

This woman had two children living in Hong Kong and Beijing; at the time of the interviews, she continued to keep in touch with them and warn them to be careful against the possibility of SARS returning to Hong Kong and China. There are good reasons for her worry, as participants felt that it is in the nature of the Chinese that when the threat of SARS is lifted, people will stop paying attention to its prevention. However, one respondent believed that individuals should learn from the incident and hoped that they would be better prepared if SARS were to reappear:

> They say that everything is OK and is back to normal. If there are problems, they will get worried and scared that's the nature of the Chinese. Three days later and they will forget very quickly, very quickly. People should know and learn from the incidence and I hope that they will be more careful about SARS in the future once they know how it spread.

Chinese elderly who live in Edmonton, where there were no SARS cases, felt that people still need to be careful to prevent SARS and other diseases in the future. One woman stated that she now pays more attention to hand washing and urged people to take on the situation as it comes and remember to keep their hands clean:

> So, the only solution for people is that we should not say that because SARS did not occur here that it is guaranteed that it will not happen here. Having no cases in Edmonton does not mean that it will never happen, no cases means that we are lucky and that we need to make sure we pay attention and attend to hygiene. So, this is very important to keep one's hands clean. I intend to continue with this from now on with or without the threat of SARS.

This elderly woman clearly pointed out that people should not take things for granted and should continue to keep up with basic strategies relating to personal hygiene, making every effort that these are observed. This indicates that people are still worried about SARS, even after it is under control. There was a sense that people should learn from the experience and apply what they have learned to prevent other infections or epidemics in the future:

> It is difficult to say and no one is sure and if it happens again, one must do everything one knows to deal with it, you cannot get too scared or worried too much about it. You cannot be scared too much. There are people who will forget about hygiene but there are others who learn their lesson well and change for good so I choose to look at things from a more optimistic way. I think it is important to look at things straight ahead and it is more helpful. One needs to look ahead and learn from the past. I am not sure whether I am optimistic or not, but I always see things looking ahead, that's the only way.

This participant coped by being optimistic and actively seeking solutions when problems arose. There is not much need or help for individuals to dwell on the past, but they should learn from others' experiences and solve their existing problems as they arise. There was uncertainty as to whether SARS would make it comeback, but one respondent felt that it was not productive to worry; rather, people should be proactive and continue to do their best to avoid the spread of SARS.

The last stage of the model describes how the Chinese elderly in this study tried to return to their daily routine. Many were able to achieve this with little or no difficulty, and life had almost returned to normal by the time of their interviews. Many had gained knowledge about SARS and the strategies they could utilize to prevent a later outbreak. There was uncertainty and fear that SARS would return, and individuals with children in Hong Kong and China indicated that they would monitor the situation closely. Those who normally go to Hong Kong to celebrate Chinese New Year all stated that they would wait and see if SARS returned the following winter. Individuals continued to pray to *sheng* (神) for protection against SARS and to pray that it will never return:

> Now it has past and people are more at ease now. Nothing happen and everyone is fine and ping on ["safe"] and thanks to *ah zhu bao yau* (主保佑)and *sheng bao yau* (神保佑)['thanks to Christ and spirits looking over us'], right? Everyone will think like this. You have to be careful with everything, everything needs to be careful.

The participants in the final stage of this model hoped that SARS would not return, but if it did, they felt that they were in a better position to protect themselves, their families, and the community than they were previously, as they had learned prevention strategies. They understood the need to continue to practice good hygiene, and they would face the problem of recurrence of SARS if it came. Individuals who prayed to a higher power for protection continued to pray that SARS would not return, but they were also realistic that individuals must continue to do their part to prevent SARS. There was still fear, but the level was much lower than during the epidemics. Many also felt that they could consider this epidemic a valuable lesson and that people should reflect on and learn from the experience.

Summary

The experience of the Chinese elderly with respect to SARS is represented in a five-stage sequential model and could be represented by figure 1 as shown in page 97. The types and levels of protective and preventive strategies initiated against SARS by the Chinese elderly depended on whether the individuals were in an area where SARS was present at the time. The participants used various strategies aimed at protecting themselves, their families, and the community at large. All believed that it was the right and moral thing to do, as SARS is a dangerous disease with a very high mortality rate. All also agreed that SARS is not preventable and that it is perhaps futile to use preventive strategies, and yet all initiated the precautions as recommended by the Department of Health in Hong Kong. All of the participants utilized strategies to increase the strength of their immune system, as all believed that a strong immune system would be their best defense against SARS; accordingly, they started paying attention to the types of food they ate, exercising, and making sure they had adequate sleep.

Responsibility to the community was also a strong incentive for the elderly to start a monitoring effort to ensure that they were keeping SARS out of the community. Strategies such as isolating themselves on returning from a SARS-infected country were closely monitored by family members and community groups, such as the church and cultural associations within the Chinese community.

There is no argument that SARS is a frightening disease, and the participants in this study were afraid for themselves but especially for their families and the community at large. They agreed that things are beyond their control and therefore they need to do their best; whatever happened, they would leave it to higher powers and accept their fate. The influence of filial piety is very clear in this study. The Chinese elderly all used this concept to guide their actions against SARS. All believed that it is right and moral to protect others from SARS.

CHAPTER V

DISCUSSION

The emergence of SARS in 2003 caused numerous hardships worldwide. Medical professionals trained in either Western or Traditional Chinese methods agreed that there were no definitive treatments for SARS at that time and stressed the importance of using protective and preventive strategies to try to control the spread of the disease. The goal for this study was to gain an in-depth understanding on the process of using protective and preventive strategies against SARS among Chinese elderly living in Edmonton.

Characteristics Influencing the Use of Strategies Against SARS

In the study, the philosophy that underscores Confucianism and Taoism underlies the strategies used against SARS. The symptoms presented in SARS were classified in the Chinese medical compendium with other warm febrile respiratory diseases. This classification enabled the utilization of a number of herbal therapies and guidelines for illness behaviors. The holistic approach was aimed at maintaining balance within one's body as well as achieving a balance with the environment. In this way, human beings are viewed as a part of the universe. This maintaining harmony within one's body and with the environment is one of the criteria for preventing and alleviating illnesses. This Chinese representation of health appeared to function independently of the highly systematic approach of Western medicine, in which treatments are based on signs and symptoms of the disease. It is necessary to point out that Chinese elderly mobilized various cultural strategies as well as TCM, including spirits and food as therapies, to maintain and maximize their health in the face of the SARS crisis.

I concur with Gerth and Mills (1953) that the motives of the Chinese elderly to act against illness (which include SARS) are embedded in the Chinese culture. The motives to initiate strategies against SARS were primarily motivated by Chinese beliefs and values. The flexibility of the culturally based rationale was evident at the time when SARS emerged as a new disease, and provided the Chinese elderly with a set of socially accepted reasons to act.

Protective Strategy Against SARS

The Chinese term *bao wu* (保護) literally means 'to protect'; it implies fortification against harm using external means, such as protective equipment. The concept of protection against SARS among the Chinese elderly in this study was more prominent than that of prevention of the disease. This is expected, as protective strategies demand an individual's immediate actions; the intention is to reduce the chance of getting SARS. Protective strategies include the use of masks, the use of *kung fai* (公筷) (public chopsticks), the use of herbs, and special Chinese food and their careful preparation. Other protective strategies included isolation and quarantine of persons who were possibly exposed to the disease and their avoidance of public places. Not all of these strategies were used consistently but, rather, depended upon the degree of perceived threat.

Masks

The use of masks was generally considered a Western strategy, as its use was widely reported in Western medical journals as a protective device against many infectious diseases, including SARS. However, as discussed in Chapter 2, the Chinese have used this form of barrier for self-protection against unknown respiratory diseases since the *Jin* Dynasty(金朝). The Chinese did not use a physical barrier but utilized facial barriers to obstruct the nostrils with various herbs and ointments. The purpose of plugging the nostrils with strips of cloths dipped in various herbal solutions was theoretically similar to that of wearing a mask: to provide a barrier between the individual and the environment. Protection of the respiratory system, especially the nose (which was considered the main venue for diseases to enter), was emphasized by Zhang Jiepin (張介賓) (1563-1640) with respect to wenyi (瘟疫) ('warm-epidemics'). Zhang alleged that the nose was critical and served as a passage for "unclean air" to enter the body (Kuriyama, 2000).

For protection against SARS, the use of N95 masks was strongly recommended by the CDC (U.S. Centers for Disease Control and Prevention), WHO, and all departments of health around the globe for professionals when caring for patients suspected of having SARS (CDC, 2003d; Health Canada, 2003a; Leung & Ooi, 2004; Seto et al. 2003; WHO, 2003b). Many of the Chinese elders in the study agreed that the use of masks was helpful in protecting them against SARS. The Chinese elderly were knowledgeable about the use of masks but believed that they were required only when traveling to crowded areas and in countries where SARS was rampant, as discussed earlier. Thus, Chinese elderly who were in Hong Kong at the time of the SARS crisis reported using masks, whereas those in Edmonton did not see the need for them. The decision to use a mask for protection was strongly influenced by the recommendations of the various health authorities in SARS-affected countries.

The Chinese elderly in my study were aware of the importance of putting on and discarding the mask properly. This viewpoint was endorsed by the medical professionals, who further emphasized the importance of good hand hygiene before putting on a mask and after its removal (CDC, 2003d; WHO, 2003b). Furthermore, some of the participants specifically suggested the N95 mask and stressed the importance of proper fit for the mask. This was supported by research, which stressed the importance of fitting for the N95 mask correctly for all health care workers (Ofner et al., 2003). The reasons for the participants' high level of knowledge concerning masks might be related to having family members who are health professionals among this group of Chinese elderly.

However, not all Chinese elderly believed that wearing a mask would help to protect against SARS. These elderly informants were in Edmonton during the SARS outbreak and therefore did not feel the immediate urgency and pressure to wear any type of personal protective equipment (PPE). It is vital to know the route of transmission of the SARS virus, and these elders were not convinced that wearing a mask was helpful, pointing to the high number of health care professionals infected even though they used the full range of PPE. Recent studies and videos have shown the importance of educating health care professionals on how to put on PPE correctly (Bryan, 2003; Lang, 2003; Leung & Ooi, 2004; Seto et al. 2003; Infectious disease video, RAH, 2004).

With respect to infectious disease, much attention has been paid to the development of protective strategies. This is especially true in the case of SARS, as the number of health care workers affected by the disease was high, and individuals were questioning whether these workers were adequately protected from the virus. The use of masks, hand washing, and isolation are generally considered strategies from the Western medical perspective. The abovementioned strategies are most effective against infectious diseases and are advocated by all Western-trained physicians. This is also the case for SARS, with little known regarding the routes of transmission for the disease, except that it is probably airborne (CDC, 2003a; Christian, Loutfy & McDonald, 2004; WHO, 2003).

Isolation

Isolation was deemed by the CDC and WHO to be the best strategy for protecting others from contracting SARS. All of the elderly were aware from the news broadcasts and newspapers of the use of isolation to prevent the spread of SARS. They felt that it was necessary to keep their community SARS free and were willing to undergo imposed isolation if there was a need. Isolation is the oldest strategy used in the management of infectious disease, dating back to the plague of Justinian in the 6th century (Johnston, 1968); and isolation remains the key for global containment of SARS (Murray, 2003). There are two differences between the public health viewpoint concerning isolation and that of the Chinese elderly. First, the former aims to contain SARS and prevent its spread, whereas the latter aims to protect an individual's immediate family and community. Second, with respect to public health, isolation is expected of individuals who return from SARS-infected areas (Department of Health, Government of Taiwan, 2003), but elders who returned from Hong Kong after WHO lifted the travel advisory against Hong Kong all voluntarily underwent self-imposed isolation out of concerns for others, as they were not certain that they were clear of SARS. In this study, isolation was used by the participants in the study mainly to protect family members and others from SARS.

Use of food and herbs against SARS

The use of food and herbs by Chinese elderly to maintain balance and increase their body resistance against SARS was clearly illustrated in this study. The Chinese elderly used a variety of food for the prevention of SARS. This finding differed from previous studies, in which food therapy was used by Chinese elderly to treat chronic conditions in addition to the use of Western medicines (Koo, 1984, 1987; Ng, Tan, & Kua, 2004). One possible explanation for this deviation might be a lack of definitive Western treatments for SARS, thus rendering strategies for prevention and protection against the disease more important. Another factor that supported the use of TCM to treat and prevent SARS was the TCM belief that the proliferation of the SARS virus increased in individuals with excess yang energy (Professor P.C. Leung, personal communication, May 6, 2004, Leung & Ooi, 2004). Therefore, taking in foods rich in yin energy (e.g., mung beans and cabbage) was necessary to balance the energies within the individual's body and rendered the individuals less likely to be infected by the SARS virus. In this case, the use of food and simple herbs in cooking aims at strengthening the body against SARS.

The use of prescribed herbs was common among Chinese elderly and was strongly advocated to combat SARS by TCM practitioners and physicians trained in both Western Medicine and TCM. The use of certain herbs was accepted as an adjuvant therapy to treat the disease during the crisis in hospitals in Mainland China and in Hong Kong. In particular *ban lan gen* (板藍根) (*Isatis indigotica*) which was known to be extremely liang ('an abundance of yin energy') in nature was known to all Chinese elderly in this study, but only Chinese elderly who were in Hong Kong at the time of the SARS crisis actually used *ban lan gen* (板藍根) (*Isatis indigotica*) as a preventive strategy against the disease. This could be explained by the urgency of the situation, the higher risk of contracting SARS for those who were in Hong Kong, and the fact that there was no definitive treatment. In addition, the media widely reported the use of *ban lan gen* (板藍根) (*Isatis indigotica*) to counteract SARS and used the endorsement by Professor P. C. Leung of the Chinese University of Hong Kong. Elderly who were in Hong Kong at the time of the SARS crisis all checked with their herbalist prior to consuming *ban lan gen* (板藍根) (*Isatis indigotica*). This suggested they were very careful about the use of this herb in treating illnesses. Thus, the Chinese elderly in this study were very careful and sought advice from the professionals before taking specific herbs aimed at treating illnesses. In this case, herbs were considered not as food but as actual medicines, which required instruction from a trained herbalist. Chinese elderly who were in Edmonton at the time of the SARS outbreak did not use specific herbs to prevent SARS, but all were aware of the different categories of herbs used to prevent the disease. In general, herbs that are yin in nature were used to combat SARS, and recipes that contained the different herbs were printed in the newspapers (Appendix V).

The close connection between the use of food and medicinal herbs to treat illnesses remains unclear (Koo, 1984). In this sense, the Chinese elderly were more likely than their counterparts in Western cultures to use food as a preventive strategy against diseases. In particular, the use of simple herbal teas and soups was common among the Chinese elderly in this study. The Chinese elderly in this study were more knowledgeable about the different types of food used to prevent minor or chronic ailments who viewed the use of food as essential for building up the body's resistance against diseases, including SARS. Koo (1984) argued in favor of using food over herbs, as the former were more "natural" and balanced, thus having fewer damaging effects. The participants in this study preferred TCM over Western treatments; they believed that the roots of health problems were better dealt with using TCM, not merely by suppressing the symptoms, as with Western treatments. Furthermore, manipulation of nutrition remains the most popular way to maintain health among Chinese (Anderson & Anderson, 1975; Kleinman, 1980; Koo, 1984; 1987; Satia-Abouta, Patterson, Kristal, Teh, & Tu, 2002).

Food preparation and the Use of *Kung Fai* (公筷) (Public chopsticks)

There is no question that food was perceived to play an important part in maintaining health among the Chinese elderly in this study. However, it is not sufficient to pay attention only to what one eats (the properties of food, such as yin or yang foods); important also are how the food is prepared and the general manners expected at the table. Chinese elderly in this study described in detail the ritual of preparing food prior to and during cooking to ensure that the food was clean and that the nutrients were not destroyed.

Besides the proper ways of preparing food, during the SARS epidemic, normative pattern of using chopsticks changed to prevent contagion. An additional pair of chopsticks [kung fai] (公筷)was introduced so that food may be served to individual bowl rather than individual using their own eating chopsticks. Chinese elderly were also meticulous about the use of different eating utensils at mealtimes. Chinese individuals dining at expensive restaurants expected the availability of several pairs of kung fai (公筷)

(public chopsticks) at each table. The kung fai (公筷) chopsticks are used only to serve food; individuals had their own chopsticks for eating. The use of public chopsticks did not generally apply to family meals unless guests were present. The use of kung fai (公筷) (public chopsticks) was recommended by the department of Health in Hong Kong, and Chinese elderly had no difficulty following this advice when eating in a restaurant.

Thus, the Chinese elderly in this study were all aware of SARS and strategies recommended by the health departments against the disease. This finding differed from the study conducted by Tse, Pun & Benzie (2003), in which Chinese elderly residing in Hong Kong were not aware of the different strategies they could use to protect themselves against SARS.

Fatalism

The use of fatalism to explain the unexplainable was apparent in the study. Fatalism explained inexplicable events beyond human control and encompasses luck, fate and destiny (Davision, Frankel & Smith, 1992). The belief in fatalism was clearly portrayed when the elderly spoke about young health care professionals who contracted SARS while on duty and succumbed to the disease. They all used the term tian yi (天意)- ‘the Will of Heaven’ to explain this unfortunate event. The Chinese elderly in this study resorted to fatalism, a lack of luck and predestination to explain the deaths of these young people, events that were out of one’s control. In this sense, participants believed that a person might conceivably die from SARS regardless of precautions taken.

Fatalism has been singled out and perceived as a social barrier to screening behaviors for breast cancer (Liang, Yuan, Mandelblatt & Pasick, 2004; Straughan &

Seow, 1995) and cervical cancer (Holroyd et al al. 2004) in Chinese women and women of non-White origin in Singapore (Straughan & Seow, 1998). Fatalism has been used to explain Chinese women's preventive strategies against life-threatening diseases. As yet, I have been able to find no studies on the effects of fatalism in relation to infectious diseases and among Chinese. Straughan and Seow (1998) argued that fatalism was strongly influenced by a person's ethnicity, religion, and the presence of informal social support networks made up of family members and friends. They proposed that women who had access to social support networks were less fatalistic than those without support. They also argued that women were generally more inclined to be proactive for the sake of their spouse. This finding was partly supported by this study, which indicated that Chinese elderly, regardless of gender, who resided with their families or with others, were more likely to engage in SARS prevention activities because they had to consider the well-being of their family and others in the community.

In summary, Chinese elderly in this study all believed in fatalism, and concurred that if they contracted SARS regardless of their effort to avoid getting the disease, then it must have been predestined to happen, and there was nothing they could have done to change its course. However, it must be pointed out that these Chinese elderly were all proactive and took an active role, as they believed in doing their share to keep SARS at bay. One would argue the moral/ethical principles that stem from Confucianism and fatalism motivated the Chinese elderly. The former was at the forefront and guided the utilization of strategies against SARS; the latter came into play when the Chinese elderly tried to explain the deaths of young health care professionals who died from SARS despite the use of all personal protective equipments. Fatalism, in particular destiny, was used by the Chinese elderly to explain and justify events that had no logical explanations. In this sense, fatalism takes on a different meaning for the Chinese elderly than it does for their counterparts in the West.

In(因) and Guo (果) and SARS

It has been suggested that there were ways of influencing one's fate, including touching wood when talking about misfortune, crossing one's fingers, and refraining from talking about ill fortune for fear that it would come true (Seow & Lee, 1994). Similarly, Chinese elderly in this study believed that they could alter their fate by accumulating good deeds. They talked about *In* (因) (cause) and Guo (果) (effect) and believed that if they did good deeds, in return, good things and no harm would come to them. In and Guo (因果) (cause and effect), are principles central to Buddhism, and encourage individuals to do good and receive good in return (Capra, 1991). The concepts of in guo (因果) were derived from Buddhism, but it is important to point out that none of the 19 Chinese elderly in the study were Buddhists. One explanation for this was that these Chinese elderly were raised with the belief that they should do no harm to others, and as a result, either they or their family would reap the benefits of good fortune. This suggests that the moral principles of Confucianism have enveloped Chinese society in much the same way that Christian moral codes are integral to Western societies, regardless of the actual religious beliefs of the individual. Thus, the average Chinese will live according to Buddhist, Confucian, and Taoist principles without necessarily subscribing to any of their underlying beliefs.

The concepts of in (因) and guo (果) are comparable to the concepts of karma and yuan.(緣). These concepts together could be used to explain the meaning of fatalism among this group of Chinese elderly. Karma is associated with the concept of rebirth; it is suggested that current sufferings are the results (the karma) of past actions (Leslie, 1999). Yuan essentially represents a "predestined affinity or relationship, or the cause of such an affinity or relationship" (Yang, 1996, p. 254). Ho (1998) argued that the concept of yuan is embedded in the beliefs of fatalism. The concept of fatalism indicated by Chinese elderly in this study might be seen to comprise the concepts of yuan (緣), in (因), guo (果), and karma and it was clear that Chinese elderly in this study employed these concepts to help them explain and cope with unfortunate events such as the deaths of young health care professionals and the outbreak of SARS. The Chinese elderly attributed such events to external factors and resigned themselves to the belief that they had no control or power over what had happened. In this case, they were better able to cope with the unpleasant situation. Thus, fatalism helped the Chinese elderly cope with the hopeless situation presented during the SARS crisis, and resigned to fatalism as an explanation in case they contracted SARS despite the use of all recommended strategies against the disease.

Confucianism and the Use of Strategies Against SARS

The health and health-related attitudes of Chinese elderly against SARS in this study were particularly influenced by Confucianism. There was little argument that traditional Chinese society was fundamentally communal in nature and that the teachings of Confucius have a great influence on Chinese behaviors. As discussed in chapter 2, Ren

(仁) (benevolence), *Yi* (義) (righteousness), *Zhong* (忠) (loyalty), Hsiao (孝) (filial piety), and Te (德) (virtue) are five Confucian concepts which guide an individual's interpersonal relationships with his or her family and extend to others in the community. In particular, *Hsiao (孝) or filial* piety provides the blueprint to guide the process of socialization among the Chinese as well as the rules to guide intergenerational conduct throughout a person's life span (Ho, 1987). Thus, Confucianism exerts a great influence on the ethical and moral systems within China, and stresses the importance of the obligations of individuals to one another, starting with family and extending to the community at large.

The concept of Hsiao (孝) or filial piety is well known to the West. It stipulates that children must show respect to their parents, but in return, parents must provide care and affection to their children (Hsu, 1971). Filial piety is considered the cornerstone of Confucianism, going beyond the obligation of just obeying and honoring one's parents (Ho, 1996). This point is critical to the discussion of the findings of this study, as filial piety is considered the fundamental ethical principle that directs both intergenerational and interpersonal relationships in Chinese society. It is through the practice *of* Hsaio (孝) or filial piety that peace, harmony and stability are brought to individual families, communities and even to nations. The most common aspect of filial piety is what the Chinese refer to as Hsaio Shun (孝順), which describes the expected and correct way of acting toward one's parents. However, in this study, filial piety pointed to the "right and humane" way to act toward one's family and others in the community. This virtue guided the Chinese elderly in this study to do what was right for the good of others and for the community. The participants' view on filial piety is that of a two-way relationship that affects the individual and others in the community. This is vastly different *from Zhong* (忠), the idea of loyalty, which demands that subjects be devoted to their ruler even when he was not worthy of loyalty, and that children be obedient to the parents even if they were not worthy of respect. Such double standards can no longer be accepted in today's world, in which democratic societies are so highly valued. The participants of this study drew on the principle of mutuality to guide them in their roles as honorable citizens. The saying that was widely used by Chinese elderly in the study said it all: "*Ji su bu yu, ma si`ru ren*"(己所不慾,勿私於人) ('If you do not desire certain things, you certainly should not impose them on others'). It is only through mutuality that filial piety and loyalty can survive in today's world. This is precisely what the Chinese elderly in this study referred to as a kind of societal filial piety, wherein everyone is expected to carry out his or her duties as a responsible citizen for the general good of the whole society.

Therefore, the major decision of the Chinese elderly to initiate protective and preventive strategies against SARS was that they did not want their children to worry about their health. Here, filial piety is reciprocal: Both parents and children need to do what is expected and necessary to ensure respect and safety for each other. Chinese elderly who lived with their children stated that they helped to cook and prepare nutritious meals. They also volunteered to clean the house, as they felt that this was a way of helping their children at the same time. These tasks are not expected of them, but the Chinese elderly all felt that they had a responsibility to contribute to the household.

Strategies against SARS were also initiated with the public in mind as it is well documented that China is a collective society. The need to "do one's best" to avoid contracting SARS was clearly demonstrated by all Chinese elderly in this study. This action was guided by Confucian moral/ethical principles, which guide the process of socialization. Moral correctness was stressed, and the Chinese elderly in this study insisted that taking all precautions against SARS was the moral and right thing to do at both the individual and societal levels. This was understandable because of the grim consequences of SARS and its high mortality rate among the elderly population. This belief was embedded in the minds of these Chinese elderly, as they would have been brought up with ethical and moral principles based on Confucianism (Ho, 1996). This pattern of socialization aligned with the demands of Confucian societies, which stressed self-control at a young age in preparation for meeting and maintaining hierarchical order in the society (Ho, 1996). There is no question that the use of protective and preventive strategies against SARS among Chinese elderly in this study was clearly driven and influenced by the moral and ethical codes set by Confucius.

This idea of societal filial piety previously discussed is also employed by the government, and in the case of SARS prevention, the authorities in Hong Kong imposed a heavy fine, for instance, on those who broke the laws against littering and spitting. Those who were required to be quarantined because of possible exposure to SARS were placed in specific locations where government officials watched them closely during the entire period of isolation. Such actions were fully supported by the participants of the study, and they were happy that the Hong Kong SAR Government was taking a lead in ensuring the cleanliness of the city and in containing the spread of SARS.

On the other hand, Edmonton had no cases of SARS, monitoring efforts rested on the shoulders of individual citizens within the different Chinese communities, as reported previously. Gatekeepers within the Chinese communities ensured that individuals returning from SARS-infected areas were isolated for the appropriate period. These gatekeepers were categorized as either official or unofficial. The former consisted of staff members from the nursing home for elderly Chinese, a center for multicultural services in Edmonton, and an apartment for Chinese elderly. Neither staff nor family members hesitated to act as gatekeepers, as both thought that it was their duty to make sure that their community remained SARS free. Again, these gatekeepers were acting on the principle of filial piety. Monitoring to ensure that individuals conformed to the rule of isolation was simply a part of the natural duty that was expected of them. Thus, there are categories of actions and reasons for upholding filial piety, and these involve going above and beyond being respectful and caring for one's parents.

In this situation, two levels of responsibility were at work. Participants who returned from a SARS-infected country and willingly underwent isolation practiced what they thought was best for their families. The determination to undergo isolation arose from concern and care for others. Gatekeepers, either formal or informal, constituted a secondary level monitoring effort to ensure further the safety of the family and the community at large. Nonetheless, the principle of filial piety underscores and guides the actions of these individuals. They firmly believe in the basic moral principle of filial piety and are willing to do everything to be good citizens.

These beliefs and values were strong among Chinese elderly in this study, as all indicated that they would sacrifice their interests for the safety of the whole family with respect to SARS. None of the elderly in the study would take the chance of infecting their family members with SARS if they thought they had been exposed to the virus. This was evident in the voluntary isolation of the Chinese elderly who returned to Canada from Hong Kong during the SARS outbreak. They were clear about their responsibility to protect the family by observing all precautions indicated by the health authorities and their obligation to do no harm to others.

In summary, the participants' decisions to initiate direct protective and preventive strategies SARS were primarily due to the influence of filial piety. The notion of filial piety, as indicated by the participants, involves a much wider perspective than the relationship between parent and child; it has changed and expanded to accommodate the immediate threat of SARS.

The Process of Protecting Self, Family and Community Against SARS

The findings of this study indicate that the utilization of strategies against SARS among Chinese elderly involved a complex relationship between variables, such as personal meaning, culture, and the norms of the Chinese community. The process among the Chinese elderly of utilizing strategies against SARS including the following stages: (a) recognizing the threat of SARS (adopting a wait and see attitude); (b) becoming terrified acknowledging the threat of SARS); (c) initiating protective strategies to protect self, family, and others; (d) resorting to a higher power for comfort and extra protection; and (e) maintaining vigilance (staying poised for a possible recurrence of SARS). The aim of initiating the strategies was predominately to protect themselves, their family, and the community against SARS.

As stated previously, the intention to protect self, family, and community is greatly influenced by the moral/ethical principles laid down primarily by Confucianism as discussed in Chapter 2, (p.32). However, the process and strategies used by the Chinese elderly at each stage of the identified model were influenced by the urgency of the SARS situation. The participants did not encounter any difficulty in initiating appropriate strategies against SARS, because they all felt it was essential and the strategies were not foreign to them. Participants felt that their personal hygiene was already adequate prior to the SARS crisis and they continued to maintain the same schedule both during and after the epidemic. It was important to note that the four Chinese elderly women who were in Hong Kong at the time of the SARS outbreak adhered to the recommendations put forward by the Hong Kong Health Department using the recommended special agents for cleaning and becoming accustomed to new cleaning routines, such as pouring bleach into the sink, toilet bowls, and any drains inside the house. They followed the recommendations without asking questions, they had total faith in the medical profession, and the consequences of contracting SARS were too grim to ignore the recommendations. There was also peer pressure to adhere to the advice, as everyone in the apartment complex was using the recommended strategies. Nevertheless, this compliant behavior was not incongruent with their cultural beliefs, putting the needs of the community first is not uncommon. In other studies, Chinese women have been extraordinarily compliant to medical advice as long as they came directly form the medical profession (Holroyd et al. 2004).

The individual effort to protect oneself and others against SARS was evident, and was to protect the family and community rather than the individual self. Besides individual effort to keep SARS at bay, the community also participated in the monitoring effort to ensure that SARS was kept out. Communities involved in this effort include church groups, friends, and family members. This was particularly apparent with regard to the monitoring of the individuals who returned from Hong Kong during the SARS crisis. The period of isolation of 10 days on return was observed mainly by the individuals, their family members, their friends, and community organizations, including church groups and various associations within the Edmonton Chinese community. This effort was generally private, and the Chinese elderly undergoing voluntary isolation did not feel that they were being monitored. On the contrary, they phoned others to confirm that it was safe for them to return to the community and resume their daily routines.

The participants' focus on family and community wellness before the individual's wellbeing is in direct contrast to the American health promotion models (e.g. the health belief model, the theory of reasoned action, the transtheoretical model, and Pender's health promotional model) which first focus on the individual. Not all monitoring efforts were covert in nature. During the peak of the SARS outbreak, especially when cases of SARS in Toronto were confirmed, the nursing home for Chinese elderly, a centre for multicultural services, and the apartment for elderly Chinese all initiated measures to ensure that the SARS virus were kept out of those organizations. It was especially important for these institutions to be vigilant, as they were frequented regularly by elderly patrons; it would have been a disaster if SARS had taken hold there, given the high mortality-rate for the elderly. All the Chinese elderly were happy that the institutions were taking precautions against SARS. They considered that the administrative staff was doing their part, and they were willing to comply with inconvenience that might be encountered. It would be accurate to propose that keeping SARS out of Edmonton required both individual and community effort. The former was influenced by Confucianism, and the latter was recommended by the health department, but both processes had community orientations. The Chinese elderly in Edmonton all subscribed to the belief that the well-being of the community must and should supersede the interests of the individual.

Summary of the Process

This process of Protecting Self, Family, and Others consisted of a five-stage model that described the Chinese elders at the onset of, during, and after the SARS epidemic (Figure 1, p.97). This model illustrated the participants' experiences from the moment they first heard of SARS through their learning to cope and living with the threat posed by SARS. The process of Protecting was initiated and maintained by the participants' increasing fear of contracting and spreading SARS during the course of the epidemic as reported by the media. The fear of passing the deadly disease to others was more intense than the fear of contracting the disease by the individual.

Stage 1 was initiated when the participants recognized the possible threat posed by SARS and decided to adopt a 'wait-and-see' attitude. The elderly participants were not concerned at this stage, as media information on SARS was limited at the beginning. In addition, the type of media report on the situation at the beginning was not threatening, consisting mainly of reports of an outbreak of pneumonia in Guangdong, China. The term atypical pneumonia (非典型肺炎) was used, but the Chinese elderly did not understand the use of *atypical* in this case. They focused on the term *pneumonia* (肺炎), which is generally a treatable condition. In this sense, the Chinese elderly were not worried or concerned at the beginning and assumed the medical professionals were dealing only with pneumonia. The medical profession did not know what they were encountering, and the urgency of the situation was not initially communicated to the public. At this stage, it was clear that the Chinese elderly were looking to the medical profession for advice and that they would not hesitate to carry out recommendations put forward by these experts. Such reactions were also reported in studies regarding the use of screening tests for cancer (Holroyd et al., 2004; Soew & Lee, 1994).

This was followed by the second stage, when SARS was rapidly becoming a threat, as the first victim died in a hospital in Hong Kong and the number of people affected by the disease increased rapidly to other countries outside of Asia, including Canada. At this stage, the participants became scared and terrified; they began to feel vulnerable to SARS, because the media had broadcasted that the elderly population was more susceptible and that the mortality rate for this group was high.

The third stage commenced when the number of SARS continued to climb worldwide, and Chinese elderly became proactive, initiating strategies to protect themselves and others. This stage was underscored by the individuals' effort to protect themselves and their family from SARS, but this responsibility also extended to the community at large. By this time, Edmonton's Capital Health Region had put up notices throughout Chinatown advising individuals returning from SARS-infected countries to undergo voluntary isolation for 10 days. The notices also included signs and symptoms to watch for and directions to seek medical help if a person experienced specific signs and symptoms. This stage was heavily influenced by the moral/ethical principles set forth by Confucius, and the Chinese elderly had a strong desire to take the right and moral action to protect self, family, and others.

The fourth stage of the model marked the Chinese elderly's seeking extra comfort in and turned to a higher power for protection. This stage was accentuated by the Chinese belief of fatalism. At this stage, participants also resorted to accepting their destiny and fate, and learned to take both good and bad consequences, provided that they had made every effort to avoid contracting SARS. The concepts of karma, yuan (缘), in (因), and guo (果) ere embedded in the Chinese culture. The former concept was from Hinduism, and the latter, from Buddhism. All the Chinese elderly in this study subscribed to in and guo (因果), regardless of their religious conviction, as this was stressed within the Chinese culture. The Chinese elders in this study had been raised to abide by this belief, and they were influenced by this view, even though they were not Buddhists.

The final stage described how the Chinese elderly eventually moved ahead and resumed control of their lives as the number of SARS cases started to decrease, no new cases were being diagnosed worldwide, and the World Health Organization declared Hong Kong, China and Taiwan SARS-free zones. This signified to the Chinese elderly that the threat of SARS had decreased. At this time, the participants were relaxed and tried to return their life to normalcy, but the threat of SARS still lingered in their minds. This final stage involved the effort of the Chinese elders to move forward although still recognizing the need to remain poised for the possible reemergence of SARS or other infectious diseases in the future. They were also confident that they were prepared if SARS were to return in the future.

Conclusion

The Chinese elderly participants in this study were very knowledgeable about SARS and the strategies that are recommended by the health departments to prevent the disease. The duty to initiate protective and preventive strategies against SARS was heavily influenced by the Confucian ideology of filial piety. The concept of filial piety used to guide the actions of these participants goes beyond the usual one-way relationship, which stresses the importance of paying respect and tribute to one's parents. Instead, filial piety is based on two-way relationships in which a person initiates strategies against contracting SARS, which, in turn, protects the community and society from the disease. Therefore, the core concept of filial piety, which demands that children be utterly devoted to their parents, is not at play here. The Chinese elderly have inferred a more complex meaning of filial piety, which goes beyond hsiao (孝) ('absolute obedience to one's parents'), extending to the entire community, and it is this complex type of filial piety that explains the strategies used by the Chinese elderly in this study.

The participants in this study were all proactive and willing to do their part in the prevention of SARS. The extent of their use of these strategies varied during the different stages of the SARS crisis. Besides initiating the actual strategies for protection and prevention, they also took part in the monitoring effort to ensure that individuals were observing the required period of isolation upon their return from a SARS-infected country. There was great cooperation among members of the Chinese communities; no one was upset or felt that they had been inconvenienced, as they shared the common goal of keeping their communities SARS free through the process of monitoring. The duty of doing good for the community overshadowed individuals' needs; again, the value of societal filial piety took precedence in this case. Both active (e.g., voluntary isolation) and passive (e.g., monitoring) strategies were used to prevent infection and protect the individual and other against SARS.

Praying to sheng (神) or Zhu (主) is prominent in this study. This is perhaps human nature, as people want to ensure that everything within their power has been pursued. An individual can look to a higher source for extra protection, one that is more powerful than he or she. However, many believed that they had not harmed anyone in their life and trusted that no bad events would happen to them. The notion of accepting fate, good or bad, is also clear in the study. All the Chinese elderly participants felt that they have lived their lives and that they would have no regrets if they contracted SARS and died as a result. They were more worried about passing the disease to other family members and to the community, and so once again they are bound by the concept of filial piety.

Contribution to Nursing

Studies on the effects of SARS on Chinese communities outside of Asia are presently extremely limited in number and scope. Therefore, results from this study are of great value to nursing and other health care professions.

Nurses must assess elderly clients individually and within their cultural context, as they exhibit different needs in relation to learning how to protect themselves from SARS. The strong sense of filial piety in this group of clients further emphasizes the need for nurses to consider the effects of culture when dealing with elderly Chinese immigrants. The understanding of culture pertaining to the Chinese in this study plays a vital role in explaining the elders' motivation and reasons for initiating preventive and protective strategies against SARS. The belief in filial piety does not apply only to the Chinese elderly; the same principle has been observed in other Asian groups, such as the Koreans and Japanese. Thus, an understanding of how Chinese elderly prevent SARS could be applied to other infectious diseases where prevention is of great importance.

In addition to the use of mask and bleach, the use of Traditional Chinese Medicine was well accepted by participants in this study, and the rationale for using it was explained well by the Chinese elderly. The use of TCM pertains not only to the prevention of SARS but generally to an improvement in the immune system, to make a person stronger and thus increase his or her ability to fight disease. The study shows that the use of TCM and food therapy is widely accepted and common among Chinese elderly.

This further indicates that culture plays a significant part in determining understanding of disease causation and prevention. For nurses, it is therefore important to acknowledge cultural factors that could affect an individual's decision to use specific treatments, and these factors might be unfamiliar to the health care professionals. An understanding of the client's culture is absolutely essential if the nurses are to provide appropriate and necessary support to combat infectious diseases.

TCM is not used by individuals only against SARS. In recent years, it has gained much recognition, and research studies have reported its use as an alternative treatment for chronic illnesses, including cancer and arthritis. This study increases nurses' understanding of the diversity of treatments of TCM and encourages nurses and other health care professionals to attend to the needs of particular groups of clients. An understanding of the process of how Chinese elderly utilized the different types of strategies against SARS will help nurses and physicians to become more aware of the complementary therapies that are used by these clients.

Comparison of findings with Health Belief Model

There is no question that the Chinese elderly participants in this study subscribe to both Western and Traditional Chinese strategies in the prevention of and protection against SARS. Both Western and Traditional Chinese Medicine focus on prevention rather than treatment of diseases. The various American models for personal health behavior in health promotion (e.g., the Health Belief Model, Pender's Health Promotion Model) (Nutbeam & Harris, 1999) first emphasized the importance of the individual when instituting health promotion activities. Health promotion activities are usually centered and targeted toward the individuals, and it is the benefits to the individual, not to the group, that are emphasized. Despite some similarities in the perception of risk of SARS, the responses of the Chinese elderly toward the prevention and protection of SARS were different from those expected in the Western health promotion models. Their responses to SARS, and subsequent activities against it, were first prioritized and externalized to protect their families and their community rather than themselves. These intentions were greatly influenced by the moral/ethical principles set forth by Confucius as discussed in chapter 2 (p. 32). Thus, the rationale for the Chinese elders to implement strategies against SARS was different to those proposed by the various American Health Promotion models. Furthermore, there is a poor fit when the Health Promotion models are applied to the Chinese elderly population, as the Health Promotion models do not address the cultural background of the Chinese elderly. One must keep in mind that the relevance of these models may change with future generations of clients as acculturation might play a role, and so subsequent studies will be necessary.

Contribution of ethnographic strategies to study

The use of the grounded theory method to explore this previously unknown experience of Chinese elderly in Edmonton has allowed the generation of a theory that has fit with the data obtained from the study and produced 'grab' (Glaser, 1978). Grounded theory studies have the power to persuade, as they portray processes of human interaction clearly. These are obvious to all through common sense, even though the phenomenon has not been described previously.

As the grounded theory does not specifically address the cultural component of this study, I also employed ethnographic strategies to ensure that the cultural components were adequately addressed. The use of ethnographic strategies proved appropriate and necessary. The most important strategy used was asking ethnographic questions of the Traditional Chinese practitioners on the use of specific TCM terms. This was crucial to my understanding of the concept of disease causation from the TCM perspective, as many terms used by TCM conveyed distinctive meanings. However, these terms are also a part of everyday Chinese vocabulary, where they take on other meanings depending on the contexts. For example, the term *che qi* (邪氣) ('evil air') generally denotes a spiritual and mystical representation of evil. This term was also found in medical textbooks of TCM, where it was used to describe the cause of diseases according to the Traditional Chinese perspective more than 2,000 years ago. This same term is still used in the Chinese medical textbooks for TCM, but its meaning no longer conveys evil. Rather, it represents disease-causing organisms (Professor Q. M. Chen, personal communication, July 15, 2003; S. Tse, personal communication, May 9, 2004). Thus, *che qi* (邪氣) was used to describe disease causation in TCM at a time when no one knew the cause of diseases. As more information on the cause of diseases developed, the meaning of *che qi* (邪氣) also changed.

The ethnographic strategies were useful for eliciting the intended and proper meanings of these terms used by Chinese elderly and by Traditional Chinese practitioners. This was extremely important in this study, as language plays an important role in the study of Chinese culture, and the meanings intended for each term must be clarified if we are to understand the experiences of the Chinese elderly. In view if the above, I believe that it was beneficial to incorporate ethnographic strategies and that these strategies contributed significantly to the findings that emerged from this study.

The grounded theory approach was used, and this focused the analysis on process. Data obtained from the ethnographic strategies also played a role, but it was up to me to decide how the analysis of data fit into the overall process. A mixed-method design (Morse, 2001a) that incorporated ethnographic strategies to obtain the additional information about culture was developed for this study. There are benefits to incorporating any strategies to elicit more information that would further enhance one's understanding of the phenomenon. Thus, the researcher's role is to perceive and conceptualize using data from the study and other sources to produce a parsimonious theory (Morse, 2001a).

Data Collection Techniques

Retrospective interviewing was the major data collection technique in this study. It was a suitable method and provided a rich source of data. The use of unstructured interviews allowed the participants to express themselves freely, affording me a more complete picture of the process under investigation. The incorporation of ethnographic strategies into the interview schedule proved useful, as they allowed me to gain a better and more accurate understanding of the study's cultural components.

The participants were given a choice as to when they wanted to be interviewed, and interviews were scheduled every other day. In retrospect, it would have been useful if the interviews had been scheduled farther apart, so that the analysis of the data could have further guided the process of data collection. However, because of the nature of the topic, it was important to interview participants quickly, as individuals were eager to take part in the study. In particular, those who had recently returned from Hong Kong were ready and eager to share their experience. This was important, as the data obtained from these participants were rich and added important components to the process.

I conducted all of the interviews in Cantonese. This proved to be helpful for two reasons. First, the participants were all comfortable in speaking their native language. They described their experiences well and were able to clarify my questions. Second, special terms used to explain certain cultural aspects would lose their meanings and would be unable to be explained adequately using another language.

Limitations of the Study

This study was conducted with a very specific group of Chinese elders in Edmonton. All participants in this study received support either from their immediate families or from church groups and associations to which they belonged. These Chinese elderly lived by themselves, with their children, or in the nursing home for Chinese elderly, and they had few or no financial concerns. This group of Chinese elderly might not reflect the full range of experiences of Chinese elders living in Edmonton.

This study is not intended to be definitive, just as no single study can be (Holldorsdottir & Hamrin, 1996). It is anticipated that the study will increase understanding of the experiences of Chinese elders in using protective and preventive strategies against SARS. It is hoped that through additional in-depth research into this area, we will gradually attain a better understanding of the processes that influence the types of protective and preventive strategies utilized by the Chinese elderly against SARS and other infectious diseases.

Implications of the Study

Responses from the Chinese elderly in this study and the characteristics of SARS as discussed in the literature review depict many similarities to those found in research in the areas of HIV/AIDS and other infectious diseases. However, the quick spread of SARS and the absence of definitive treatments make prevention and protection strategies of prime importance. There were no studies related to SARS conducted in Edmonton in 2003 (S. Peters, personal communication, July 2, 2003), although many studies focused on the epidemiology and medical management of patients with SARS (Drosten et al., 2003; N. Lee et al., 2003; Poutanen et al., 3003; Tsang et al., 2003). No studies focused on characteristics that influenced the use of specific strategies against SARS and the rationales for using these strategies. It is through understanding the preventive and protective strategies used against SARS among the Chinese elderly in Edmonton that nurses can plan culturally appropriate education programs tailored to the needs of this group. Therefore, this study contributes to research on infectious diseases in several ways. First, it illustrates specific responses of the Chinese elderly in relation to the urgency created by SARS epidemic. Second, this study takes into consideration the influence of culture in relation to the use of specific strategies to prevent SARS and to protect self, family, and community from the disease. Finally, the findings contribute to the body of knowledge of information of health care professionals who work with other ethnic minority groups to understand more fully the importance of culture and further promote prevention of and protection against other infectious diseases.

The findings of this study could be helpful to public health departments when planning recommended strategies against SARS and similar type of infectious diseases. For instance, knowledge of the cultural practices pertaining to isolation provides a protection that is congruent with the recommendation of the health department. The information on the use of specific strategies against the SARS is also helpful to policy makers, as it could be incorporated into prevention programs for this particular group. This is the first step toward providing culturally sensitive care to a minority group that is quickly becoming visible in our society.

In addition, the health departments might consider using the different organizations within the Chinese community to monitor the compliance of individuals' isolation. This method was shown to be highly effective in the study, as the desire to adhere to the Chinese culture of doing no harm to others was strong among this group of participants. It is clear from this study that the delivery of conventional health care (mainly Western Medicine) inn Canada and strategies for combating SARS (all based on the Western perspective of disease causation) is not comprehensive and did not take into account of the types and needs of cultural backgrounds of the Chinese elderly. This approach to health care delivery forces individuals from different cultural groups to conform to one type of treatment modality which could be incongruent to their cultural background.

Implications for Nursing Education

The most important implication of this study is to alert and educate nurses and other health care professionals to the importance of respecting the patients' cultural beliefs in relation to disease causation and methods for maintaining health. The findings revealed that some strategies used by the Chinese elders fell within the policies and recommendations of the Department of Health, whereas others might be different and so not recognized by nurses. Nonetheless, nurses must respect and be aware of cultural differences and incorporate these into care plans and when planning educational sessions. It has been recognized that nurses and other health care professionals should provide culturally appropriate care to the patients. This is important for all Canadian cities, including Edmonton, as the number of Chinese immigrants is expecting to continue to increase over the next decade. At the present time, there is no an undergraduate nursing course addressing culture specifically, although the importance of culture is often emphasized. Perhaps, it is time to address the need to incorporate such courses earlier, as it is through education that culturally sensitive care can be delivered to patients from all cultures.

Implications for Future Studies

There is very limited research to date investigating the level of knowledge of Chinese elderly in relation to SARS. The results of this study were very different from those reported by Tse, Pun, and Benzie (2003), which indicated that Chinese elderly in Hong Kong had little knowledge about SARS. One needs to find out why Chinese elderly in Edmonton were so different from those in Hong Kong. This study clearly illustrated the importance of incorporating culture as a means of revealing and interpreting cultural response to an urgent and immediate threat to health. A comparative study involving Chinese elderly from different countries would be valuable as characteristics influencing the use of protective and preventive strategies against SARS and other infectious diseases might be different. Results from such study would inform the health care professionals the best interventions for the different groups of Chinese elderly.

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Appendix I

The Four Books of Confucianism

Li Jing (禮經) The Book of Rites

The Chinese term for ritual is *Li* (禮), used initially to describe elaborate ceremonies and customs of the Chinese courts and nobility. Confucius later broadened the concept to include moral propriety. To Confucius, the practice of Li (禮) required individuals to conduct rituals in the proper manner. Living up to the demands of Li (禮) means to carry out what is required of oneself using the best manners. Li Jing(禮經) documents guidelines for the proper conduction of all ceremonies, and these are often consulted by individuals who are not sure of how to act in a compassionate way under specific circumstances. Thus, Li Jing(禮經) serves as mainly a reference textbook for individuals. Studying the Li Jing (禮經) and taking part in ceremonies were beneficial, as an individual would learn to develop a sense of moral propriety. The book also serves to guide children on the proper and expected way of caring for their parents.

Lun Yu (論語) *the Analects of Confucius*

Lun Yu (論語), or the *Analects of Confucius*, records the sayings and deeds of Confucius and his disciples on a variety of topics, including philosophy, politics, education, and moral cultivation. The book contains advice from Confucius on how to show respect for one's parents, which must be accompanied by feelings of filial piety and not involve just the act of being kind to one's parents:

> Filial piety is taken to mean providing nourishment for parents, but even dogs and horses are provided with nourishment. If it is not done with reverence for

> parents, what's the difference between men and animals? (*Analects*, Bk.2, p. 39, ch.7)

Meng Shu (孟書), the Work of Mencius

Meng Shu (孟書), or the Work of Mencius, contains guidelines for the practice of filial piety according to the opinions and conversations of Mencius, the principal disciple of Confucius. According to Mencius, children must observe filial piety when their parents are alive and should continue to do so after their parents are dead. Mencius introduced the importance of ancestor worship in his writing. This sentiment is clearly illustrated by one of Mencius' stories:

> Tseng-tzu's father was fond of sheep-dates, a sweet fruit. When his father was alive, Tseng-tzu often offered him this fruit. After his death, Tseng-tzu could not bear to eat the fruit, because he was reminded of his father whenever he saw it. (*Work of Mencius*, Bk. 7, p. 11, ch. 36)

Hsiao Jing (孝經) ,the Teachings of Filial Piety

Hsiao Jing (孝經), or the Teachings of Filial Piety, contains guidelines for the practice of filial piety. The five duties of a filial son are quoted from Confucius's teaching:

> (1) He must venerate them in daily life. (2) He must try to make them happy in every possible way, especially when the meal is served. (3) He must take extra care of them when they are sick. (4) He ought to show great sorrow for them when they are dead. (5) He must offer sacrifices to his deceased parents with the utmost solemnity. If he fulfils these duties, then he can be considered as having done what ought to be done by a son. (Chen, 1908, p. 25)

Hsiao Jing (孝經) contains guidelines on the practice of filial piety and addresses the duties of children to parents. The book was widely used by all teachers during the Han and Ming dynasties.

Appendix II

Details on the theories of *Yin Yang* and *Wu Xing* (陰陽五行)

In ancient times, natural phenomena such as the transition from night to day, the changes of the seasons, or the changes in the weather patterns were not understood, and science was not well developed. The ancient Chinese believed that the supernatural beings *Sheng* (神) and *Kwei* (鬼) controlled the universe; the term Sheng Kwei (神鬼) was thus given to describe this period of time.

When there was an epidemic, drought, or other natural disaster, people would pray to Sheng (神) and Kwei (鬼) for protection. Eventually, people discovered that the weather often did not improve and those who were sick often did not get well even after they prayed to Sheng (神) and Kwei (鬼), and they began to doubt the deities' powers. They then came to the conclusion that these events were natural phenomena. This represented a big leap in the way people thought. However, not all were satisfied with this change in thinking; people were still looking for explanations for the observed phenomena but one that did not involve Sheng (神) and Kwei (鬼) (Lee, 2003). It was under these circumstances that the philosophical foundation of *yin* (陰) and yang (陽) began to emerge 3,000 years ago during the *Chau* Dynasty (周朝). The yin yang (陰陽) theory was used to explain natural phenomena, such as how day evolves into night. In *Shu Wen* (素問), an ancient medical textbook, it is recorded that the yang element accumulates to form the sky and the yin energy accrues to form earth (Shu Wen, 素問). In the same way, day, sun, and wind are designated as yang (陽), and night, moon, and rain are considered yin(陰).

The theory of yin yang (陰陽)was applied to medicine initially during the *Spring and Autumn Period* (春秋戰國) or the Period of the Warring States, by the traditional Chinese practitioners. How the theory *of yin yang (陰陽)*is utilized in TCM will be explained in the next section.

Characteristics of *Yin and Yang* (陰陽)

Polarity. Yin and yang (陰陽)are two abstract terms that the Chinese coined to describe the polarity of forces and the contradiction of conditions; the terms themselves really do not have much meaning. These terms are widely applicable to conditions that are opposite to each other. For instance, *yang (陽) represents external* force, brightness, gaseous matter, invisible motion, activity, optimism, growth, and determinism and yin is used to describe the opposite of each of the above qualities. Thus, the concept *of yin (陰) and yang (陽) can be* widely applied to explain phenomena that involve polarity.

Interconnectedness (interdependence). Yin (陰)and yang (陽) each have their own unique characteristics; however, within the foundation of their polarity, there are elements of interconnectedness and balance. These relationships are most useful in explaining the concept of TCM. For instance, the stomach is designated as yin; however, its biological functioning involves invisible movement responsible for digestion, which is *designated yang (陽). The yin (陰)organ without the yang (陽) energy to propel its digestive function would be considered useless; similarly, without the organ, the energy for digestion is also rendered useless (Professor Q.M. Chen, personal communication*, September 3, 2003; S. Tse, personal communication, May 8, 2004). Therefore, yin (陰) and yang (陽) depend on each other, and without one, the existence of the other is meaningless. For many *individuals, yin yang (陰陽) represents* opposing forces, but very little is understood about their interdependence, which makes up the core of TCM. To understand TCM, one must appreciate that yin and yang (陰陽) must coexist and that one cannot exist without the other.

The Evolution of *Yin* and *Yang* (陰陽)

The interdependence of yin and yang (陰陽) can be used to represent all phenomena, and one eventually transforms into the other. The two elements are contradictory but never static, and evolve into each other with changes within phenomena. For instance, as Shu Wen (素問) stated about the weather conditions, "*Dai main sheung de shui chi cheung sing chae yun, bain wei tian chi, tain chi bei huo, bein shei gong yai sheung wei yu*" (地面上的水氣上升成雲，變爲天氣；天氣變化,便下降而成爲雨。) (the water on the ground rises to become the clouds, then becomes weather; the weather changes, and it comes down as rainfall). This indicates the evolution of yin (陰) and yang (陽) from the natural phenomenon, as the water on the ground is designated as yin (陰), and then it evaporates from the heat, which is yang (陽) in origin, so it changes from water (yin) to gas (yang). Conversely, when the steam meets cold air (yin) (陰), it will turn from yang back to yin (陰), causing the weather change and resulting in rainfall.

Food belongs to yin, but the digestive action is categorized as yang(陽). The food under yin must be broken down by the yang (陽)digestive force, so that the food can be absorbed. Conversely, the yang digestive forces need to be nourished by the food to maintain its function (Wong, 2003). These two examples clearly illustrate the interchangeability from yin(陰) to yang (陽), and vice versa.

Disease Causation according to Traditional Chinese Medicine (TCM)

The Imbalance of *Yin* and *Yang* (陰陽)

The yin yang (陰陽) theory underpinning TCM builds on the foundation of *Tian ren xian yin*(天人相應) ("man and environment are connected as one") (Wong, 2003). *Ren* (人) means "the human body" and Tian (天) signifies the natural environment. *Tian ren xian yin* (天人相應) denotes the interconnectedness between the human body and the environment. The functions of the human body are constantly under the influence of changes in the environment. The body has to adjust to these changes to stay healthy and disease free. To achieve this goal, an individual needs to understand the changes within the four seasons and prepare the body to adjust to these changes.

Explaining the Body's Physiological functions Using *Yin Yang* 陰陽)

With respect to the anatomy and function of the body, according to *Shu Wen* (素問), '*Ren sa de yin tai, lai bu kai yin wo yang*'(人生的形體，離不開陰和陽) ('the human body is completely dependent on *Yin* and *Yang* energies'). Thus, the body is represented by these two opposing forces. Life, according to TCM, depends entirely on yin and yang energies, and the theory can be used to explain all the bodily functions. The parts of the body are designated either yin or yang. For instance, the head is yang, and the toes are yin; the back is yang, and the abdomen is yin. The outside of the body is yang, and the inside is yin. Major organs, such as the heart, liver, spleen, lungs, and kidneys, are considered the *yin* organs; yang organs include the gall bladder, stomach, large intestines, small intestines, and bladder (Professor Q.M. Chen, personal communication, July 15, 2003; Wong, 2003).

The theory of yin yang (陰陽) can be used to explain the physiological functions of the body as well. According to *Huang Di Nei Jing* (皇帝內經), the first comprehensive medical text book for TCM, '*Yang far chi, yin sheung yen*' (陽化氣，陰成形) (yang changes into the vital force, and yin becomes the shape) (cited in N. Lee, 2003, p. 85). Thus, all invisible forces propelling movement come from yang, and the substance that takes shape will be considered yin. For an individual to be healthy, it is necessary to balance the yin and yang within his or her body. This is achieved by using yang energy to protect the body from the outside, whereas yin energy stays internal to strive for balance within the body. Thus, to maintain proper functioning of the body, yin and yang must be in absolute harmony.

Disease Causation using the Theory of YinYang (陰陽)

According to Nei Jing (內經), the yin (陰) and yang (陽) within a body should be in balance. If yin is greater than yang, this will affect the yang portion of the body, and if yang is greater than yin, it will similarly affect the yin portion of the body. For instance, if there is an excess of yang, the body will exhibit symptoms that pertain to having too much heat (thus, the person might have a fever or a sore throat); if there is more yin, the body will exhibit symptoms pertaining to increased coldness inside the body (the person will feel cold all the time in this case). In conclusion, if symptoms consist of fever and restlessness, then the illness is categorized as a yang disease; if symptoms consist of depression or feeling cold, then it is a yin disease.

Hence, the implications of yin (陰) and yang (陽) are diverse, and one must understand them thoroughly before going on to understand the essence of the Five Elements, which also play an important part in TCM.

The Basic Concept of the Five Elements (*Wu Xing*) (五行)

Evolution of the Five Elements (Wu Xing) (五行)

The theory of Five Elements (wu xing) (五行) evolved when humans tried to explain what was observed in nature. The Five Elements (五行) consist of *jin*(金)(metal), *mu* (木)(wood), *shui*(水)(water), *huo*(火)(fire) and *tu* (土)(earth). Initially, people treated the five elements as the beginning of everything and thought that everything came from these five elements. Later, the characteristics of these five elements were used to develop a set of more active meanings for the five elements, aside from merely using their names, the aim being to explain the dynamic interactions among observed phenomena. According to *Chau Shu* (周書):

> Everything that is in motion is represented by Wood; things that are hot are described as Fire; things that are cool represent Water; things that are soft and vulnerable to fire are Metal and things that are stable and sturdy are categorized as Earth. (Lee, 2003)

Wu xing (五行) is also referred to as *wu wen* (五運) ("continuous movement"), a term that implies that everything within nature is evolving, not static; it is used to characterize action and is similar to xing (行). Both characters carry an active rather than a static meaning. (Dr. F.C. Lei, personal communication, August 28, 2003; Lee, 2003).

The theories of yin yang and wu xing (陰陽五行)were conceived of at different times during Chinese history; however, they are both used to explain natural phenomena. Thus, it is logical for the Chinese to use these two theories concurrently to explain phenomena and principles of treatment of diseases within TCM. The term yin yang wu xing (陰陽五行) is used widely in TCM, but the individual words are also used separately, as each has unique characteristics.

The Concept of Mutuality and Control in Wu Xing (五行)

Wu xing (五行) or wu wen (五運) (the Five Elements), have mutual relationships between one another. Each relationship involves two elements, and a total of four sets of relationships are established: Water gives rise to wood, wood gives rise to fire, fire gives rise to earth, earth gives rise to metal, and metal gives rise to water. When one looks at these relationships, there is a "mother-son" affiliation, and this affiliation is cyclical. Water gives rise to wood, thus making water the mother and wood the son; Wood gives rise to fire, implying that wood takes on the mother role in this relationship and that fire is the son. The other mother-son relationships can be predicted in the same way (Dr. F.C. Lei, personal communication, April 15, 2003; Lee, 2003).

The Five Elements control each other, as follows: Wood controls earth, earth controls water, water controls fire, fire controls metal, and metal controls wood. In this relationship, water is used to put out fire, fire is used to melt metal, and so forth. The control and mutual relationships between the Five Elements maintain in the universe and are used to explain all phenomena.

The Use of Wu Xing (五行) (Five Elements) in TCM

The applications of the concepts of wu xing (五行), or the Five Elements, in TCM are numerous. Similar to *yin* and *yang*, people tried to explain occurrences in nature and their effects on the body system. Wu xing is employed to demonstrate the complexities of physiological functions of the body.

When discussing the application of wu xing (五行) to the physiological function of the body, one needs to include the understanding of the Five Organs. This is used to explain the relationships between Wu Xing (五行) and the body's organ system. The Five Organs that are related to wu xing, according to TCM, are *xi* (心), heart; *gan* (肝), liver; *pi* (脾), spleen; *fei* (肺), lung; and *san* (腎) kidneys. For instance, fei (肺) (lung) is designated as a Metal element, the rationale being that sound is produced whenever one hits any type of metal, and the human voice is produced by air coming from the lungs. At the same time, the lung is very sensitive to any type of steam or gas; thus, using Metal to represent the lung is most appropriate, according to the practitioners of TCM (Professor Q.M. Chen, personal communication, July 15, 2003; Lee, 2003; Dr. F.C. Lei, personal communication, April 15, 2003, S. Tse, personal communication, May 9, 2004, 2003). Similarly, the spleen is designated as Earth, because it is in charge of digestion and thus controls the distribution of nutrients throughout the body. In wu xing (五行), Earth is considered the mother of everything, as without Earth, nothing can be grown. Similarly, human existence depends entirely on nutrition. Without the digestive function of the spleen, nothing will be absorbed; thus, the spleen is designated the element of Earth. The Fire element is assigned to the heart, the rationale being that any type of heat generated within the body will evaporate and dissipate toward the head. The tongue has a direct connection to the heart physiologically, and if there are changes in the disease state, one's tongue can be painful and the face might be flushed. This is related to the fact that the heart is affected by heat; therefore the Fire element is assigned to the heart. Water is the exact opposite of Fire; it often flows downstream; every day, humans consume Water, which eventually passes out as urine through the bladder. The pioneers of TCM believed that the excretory function was controlled by the kidneys and thus accorded the element Water to the kidneys and termed them *Shui zhang* (水臟) (the Water organs). Finally, Wood is used for the liver, because Wood (trees) often grows out and up, giving people a sense of strength. This is similar to the nature of the liver.

The concept of control, which was discussed earlier, will also apply to the five organs; for instance liver (Wood) controls the spleen (Earth) and the Spleen (Earth) controls the lung (Metal) and the lung (Metal) controls the liver (Wood). Thus, symptoms observed from the respiratory system do not mean that there are problems with the lung; the problem actually originates from within the liver. Thus, it is a complicated system, and practitioners of TCM combine the theories of yin yang (陰陽) and wu xing (五行)to diagnose individuals' illnesses and prescribe treatments (Professor Q.M. Chen, personal communication, July 23, 2003; Dr. F.C. Lei, personal communication, November 5, 2003).

Health Research Ethics Board

2J2.27 Walter Mackenzie Centre
University of Alberta. Edmonton. Alberta T6G 2R7
p.780.492.9724
p.780.492.0459
f.780.492.7303
ethics@med.ualberta.ca

June 23, 2003

Ms. B. Wills
Faculty of Nursing
c/o 9523-100A Street
Edmonton, AB
T5K 0V5

Dear Ms. Wills

Re: Traditional and Western Strategies for Protection Utilized by Chinese Elderly in Edmonton: The Case of SARS, File #081201-NSG

Thank you for advising the committee that you would like to make an amendment to your previously approved protocol with the addition of SARS. Thank you as well for editing your information letter and consent form to reflect this change.

The chair of the HREB has reviewed this information and found the changes acceptable as presented. Thank you very much for keeping the board up to date.

Sincerely,

Gillian Johnson
Administrative Assistant
Health Research Ethics Board (B: Health Research)
(780) 492-0839

UNIVERSITY OF ALBERTA

Informed Consent Form

Title of research:	The responses of Chinese elderly in Edmonton to the threat of SARS
Investigator:	Betty S.H. Wills PhD candidate, Faculty of Nursing University of Alberta, Edmonton, AB Phone: (780) 492-9041
Supervisor:	Dr. Janice M. Morse Professor, Faculty of Nursing University of Alberta, Edmonton, AB Phone: (780) 492-5914

The purpose of this study is to ask participants about the responses of elderly Chinese to SARS. Participants will be asked about their perceptions regarding protective and preventive strategies utilized to prevent SARS. If you decide to take part, you will be interviewed once or twice. Each interview will last about one hour, and all interviews will be tape-recorded. If you do not wish to answer any questions you may refuse to do so, and you may request the researcher to stop the interview at any time. During the second interview, you may be asked to clarify and elaborate on certain points.

The interviews will be transcribed, and your name will not be on the transcription; a false name will be assigned, and your name will not be associated with the study or on any publication resulting from this research. All materials will be anonymous. There will be no direct benefits to you for participating in this study, but the information that you provide us will enable health care professionals to improve care to the Chinese elderly in the future.

Consent: I,_____________, hereby consent to participate in the above-named study.
(Print name)

My participation in this study is voluntary, and I understand that my participation will have no effect on the care I currently receive. I understand that I may be interviewed more than once, the interview will last about one hour, and these interviews will be tape-recorded. I understand that my participation in this project is anonymous and that my name will not be associated with this study in any way.

I understand that I may refuse to answer any questions and may stop the interview or withdraw from the study ay any time without penalty. I also understand that there are no direct benefits or risks from participating in this study.

I have been given the opportunity to ask questions regarding the study, and these questions have been answered to my satisfaction.

____
Participant's signature

____
Researcher's signature

Date: __________________

Appendix V

Recipes of Herbal Medicines Against SARS

SARS: Chinese herbal Medicine Prevention Prescriptions Report relayed by Journal of Chinese Medicine (England)

The University of Hong Kong, School of Chinese Medicine, has devised two herbal formulas for prevention of SARS. They say the staffs at their clinics have been taking these herbal teas for more than a month and so far, none has been infected.

SARS prevention for general use:

Isatis root (*banlangen*)	12 g
Lonicera (*jinyinhua*)	15
Forsythia (*lianqiao*)	15 g
Coix (*yiyiren*)	15 g
Pseudostellaria (t*aizishen*)	15 g
Atractylodes (*baizhu*)	15 g
Liccrice(*Gancao*)	9g

The inclusion of aractylodes and peudostellaria reflect the idea that the pathogens involved in SARS is one of "damp-heart" which damages the *qi* and *yin,* causing weakness, fever, and dryness. The origin place where SARS occurred (Guangdong and Vietnam) have a climate that is usually hot and damp. The climate is thought to be the roots of many diseases; from the Western perspective, it is the crowded conditions that are responsible for the quick spread of the disease.

From: http://www.canmedbotanics.nl/sars2.html